PDC 58370-9

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Fantasy AND

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A Snark In The Night
A NEW NOVELLA BY
GREGORY BENFORD

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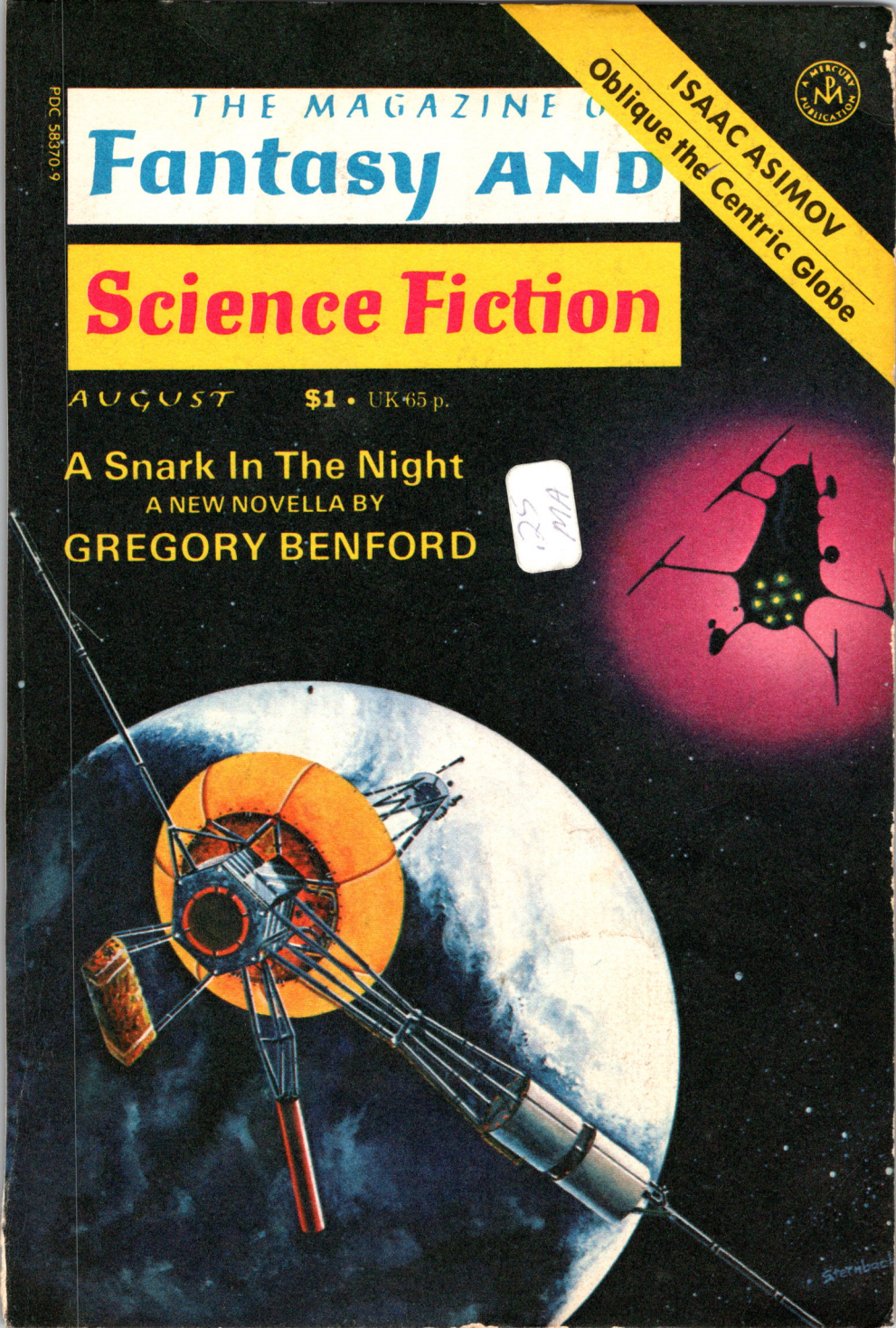

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The Magazine of Fantasy and Science Fiction, Volume 53, No. 2, Whole No. 315, Aug. 1977. Published monthly by Mercury Press, Inc. at $1.00 per copy. Annual subscription $10.00; $11.00 in Canada and Mexico, $12.00 in other foreign countries. Postmaster: send form 3579 to Fantasy and Science Fiction, Box 56, Cornwall, Conn. 06753. Publication office, Box 56, Cornwall, Conn. 06753. Second class postage paid at Cornwall, Conn. 06753 and at additional mailing offices. Printed in U.S.A. Copyright © 1977 by Mercury Press, Inc. All rights, including translations into other languages, reserved. Submissions must be accompanied by stamped, self-addressed envelope. The publisher assumes no responsibility for return of unsolicited manuscripts.

Greg Benford's new story describes an alien spacecraft approaching Earth during a time of emotional turbulence for one of the watchers. It is a superior story on all counts and, while complete in itself, will form a portion of a novel, IN THE OCEAN OF NIGHT, to be published shortly by The Dial Press/James Wade Books.

A Snark In The Night

by GREGORY BENFORD

He had bought a large map representing the sea
Without the least vestige of land:
And the crew were much pleased when they found it to be
A map they could all understand.
— *The Hunting of the Snark*
Lewis Carroll

The solar system is vast. Light requires eleven hours to cross it. Scattered debris — rock, dust, icy conglomerates, planets — circles near the ordinary white star, each fragment turning one face to the incandescent center, receiving warmth, while the other faces the interstellar abyss.

The craft approaching the system in 2011 did not know even these simple facts. Swimming in black vastness, it understood only that it was once again nearing a commonplace type of star and that the familar ritual must begin again.

Though it was carrying out a long and labored exploration of this spiral arm, this particular star was not chosen at random. Long before, cruising at a sizable fraction of light speed, somewhat below the plane of the galaxy, it had filtered through the whispering radio noise a brief signal. The message was blurred and garbled. The machine began to turn in a great arc which arrowed toward a grouping of stars; the jittery message had barely lasted long enough to fix its direction. But did it come from this system ahead or from some much more distant source lying beyond it? In such circumstances the craft fell back on its habitual patterns.

Its first duty was simple. It had already decelerated until interstellar dust would no longer plow into it with blistering, destructive velocity. Thus the craft ebbed the magnetic fields encasing it and began to extend sensors. A port opened to the utter cold and peered ahead. A blinder drew across the image of the nearing star, so that tiny flecks of light nearby could register.

The telescope employed was 150 centimeters in diameter and did not differ markedly from those used on Earth; some facets of design, bounded by natural law, are universal. The craft crept along in the throat of its exhaust. Fingers of magnetic fields, extended forward, plucked the proper atoms from the interstellar gas and funneled them in. Only this carving of a cylinder in the dust disturbed the silent reaches.

The craft watched patiently. Any planets orbiting the star ahead were still far away, and picking out their movements against the speckled background of stationary stars was

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difficult. At four-tenths of a light-year away, the activated circuits and their consultation backup agreed: a yellow-brown patch near the white star was a planet. Higher functions of the computers felt the prickly stirrings of activity and heard of the discovery. A background library of planetary theory was consulted. The blurred, dim disk ahead shimmered as the ship swept through a whisper-thin cloud of dust, while the machine bracketed and measured its objective in methodical detail.

The planet was large. It might have enough mass to ignite thermonuclear fires in its core, but experience argued that its light was too weak. The computers pondered whether to classify the system as a binary star and eventually decided against it. Still, the waxing point of light ahead held promise.

II

He awoke, basking in the orange glow of sun on his eyelids. A yellow blade of light streamed through the acacias outside the window and warmed his shoulder and face. Nigel Walmsley stretched, warm and lazy and catlike. Though it was early, already the heavy-scented heat of the Pasadena spring filled the bedroom. He rolled over and looked appreciatively at Alexandria, who was seated, seriously studying herself in the mirror.

"Vanity," he said, voice blurred from sleep.

"Insurance."

"Why can't you simply be a scruff, like me?" He smiled. 'Scruff' was an archaic English form, and he liked to stress his Englishness.

"Business, " she said distantly, smearing cream under her eyes. "I'm going to be far too busy today to pay atention to my appearance."

"And you *must* be spiffy to face the public."

"Ummm. I think I'll pin up my hair. It's a mess, but I don't have time to ...."

"Why not? It's early yet."

"I want to get into the office and thrash through some paperwork before those representatives from Brazil arrive. And I have to leave work early — have an appointment with Doctor Hufman."

"Again?"

"He's got those tests back."

"What's the upshot?"

"That's what I'm to find out."

Nigel squinted at her groggily, trying to read her mood.

"I don't think it's really important," she volunteered.

The bed sloshed as he rolled out and teetered on one foot, an arm extended upward in a theatrical gesture.

"Jack be nimble," Alexandria said, smiling and brushing her hair about experimentally.

"You didn't say that last night."

"When you fell out of bed?"

"When *we* fell out of bed."

"The party on top is in charge of navigation. Code of the sea."

"My mind must have been elsewhere. Silly of me."

"Um. Where's breakfast?"

Naked, he padded across the planking. The yielding, creaking feel of oiled and varnished wood was one of the charms of this old trisected house, and worth the cost of leasing. He went into the bathroom, lifted the ivory toilet seat and peed for a long moment; first pleasure of the day. Finished, he lowered the seat and its magenta cover but did not push the handle. At thirty-five cents a flush, he and Alexandria had decided to leave things go until absolutely necessary. As an economy measure, the savings weren't necessary for them, but the waste of not doing so seemed inelegant.

He walked through the archway of thick oak beams, into the kitchen. The tiled room held the night chill long after the remainder of the house had surrendered to day. The slapping of his sandals echoed back at him; he flipped on the audio channels and dialed first music, then — finding nothing he liked, this early — the news spots.

He grated out some sharp cheddar cheese while a calm, undisturbed voice told him that another large strike was brewing, threatening to cut off shipping. He rapped open six eggs, thought a moment and then added two more, and rummaged through the refrigerator for the creamy, small-curd cottage cheese he'd bought the day before. The President, he heard, had made a "tough, hard-hitting" speech against secret corporate gestation-under-glass programs; she made no mention of similar government projects. Two of the recent hermaphrodites had married, proclaiming the first human relationship free of stereotypes. Nigel sighed and dumped the lot into the blender. He added some watery brown sauce he'd made up in batches for just this purpose and sprinkled in marjoram, salt and pepper. The blender purred it all into a smooth soup. He fetched tomato sauce while the audio went on about a new industrial coalition which had linked up with an equally massive crowd of labor unions, to back a bill granting extraordinary protectionist import taxes on goods from Brazil, Australia and China. For variety and in the name of pure blind experiment he added coriander to the mix, poured it into a souffle dish and started it baking. The oven popped with industrious heat.

Alexandria was showering as he dressed. He put the bedroom in order; last night, tumbling toward the bed, they'd scattered oddments of underclothing like debris from

some domestic collision. He rolled up his flared shirt cuffs in anticipation of the day's warmth and Alexandria emerged from the vapor shower, her expressive bottom jiggling beneath a sheen of moisture.

She slipped the shower cap from around her knotted hair and said, "Read me my horoscope, will you? It's on the end table, there."

Nigel grimaced but did as she asked. "I prefer entrails, myself. Shall I nip out for a small goat, put him to the knife and give you a prognosis for the day?"

"Read."

"Much more satisfying, I should think. Gutsy—"

"Read."

"Gemini, April 20 to May 20." He paused. "Let's see, 'You are quick, intelligent and well organized. Try to use these to advantage today. Unfortunately, people will probably tend to think you are overly aggressive. Try not to flaunt your power, and resist the impulse to hurt small animals — this is a bad character trait. Avoid orange juice pits and dwarves today.' Sound advice, I'd say."

"Nigel ...."

"Well, what good's advice if it's not specific? A lot of vapid generalities won't tell you much about what stock to buy for those Brazilian fellows — if there were stocks any more, that is."

"They want to buy *us*, that's the point."

"The whole airline?"

"Yep. Lock, stock and et cetera."

"And your job—?"

"Oh, they just want to own us, not run the company."

"Ah," he said, and padded into the dining nook.

"Shirley's coming over after supper tonight," Alexandria said.

"Good. You finish that novel she gave you?"

Alexandria sniffed elegantly. "Nope. It was mostly the usual wallowing in postmodernist angst, with technicolor side shows."

Nigel popped a Swebitter grape into his mouth; his lips puckered at its tartness. Alexandria reached for a grape and winced. "Damn."

"Wrists still hurting?"

"I thought they were getting better." She held her right wrist in the other hand and wriggled it experimentally. Her face pinched for an instant and she stopped. "Nope, it's still there, whatever it is."

"Perhaps you sprained it."

"Both wrists simultaneously? Without noticing it?"

"Seems unlikely."

They paused to watch the couple in the yard below bring their argument to fruition. The man slammed down his fork, scowling. The woman rose from her chair and

made a threatening gesture. "Here it comes," Alexandria said. The man began speaking. Seen through the glass, his lips made short, tight movements. There was no sound. The woman picked up her plate. The man stopped. She flipped a yellow mush of egg at him. It caught his shoulder and spattered on the ground. A whitening flush of shock spread across his face. The woman turned and ran with quick, choppy strides into the house. The man looked dumbly at his shoulder. He picked up a glass of reddish juice and sipped it reflectively. After a moment he followed her into the back door of the first-floor apartment.

"Round seventy-eight," Alexandria said bemusedly.

"I'd say she got it on points," Nigel said.

They ate for a while in silence.

"Damn," Alexandria said abruptly. "You know, I don't believe I want those Brazilians to get our company after all."

"Uh? I thought —"

"Yes, yes, I started it all. Made the first moves. But dammit, it's *ours*. We could use the capital, sure ..." She twisted her mouth sidewise in a familiar gesture of irritation. "... but I didn't realize —!"

"That was part of the soft sell, though. They'd get something thoroughly American — *American* Airlines."

"Compared to us, the way we do things, those preening dandies can't tie their shoelaces without an instruction manual. They don't *know*."

"Ah." He enjoyed watching the flush of eagerness and zest stealing the cool and proper manner from her features. Watching her this way, chattering on about indices and margins and accountable funds, suspended halfway between the soft and easy Alexandria of the night, emerging into the precise, efficient executive of the day, he knew again why he loved her.

The Jet Propulsion Laboratory was a jumble of rectangular blocks perched on a still-green hillside. As the bus wheezed to a stop, he heard chanting and saw three New Sons handing out literature and buttonholing at the main gate. He took one of their handouts and crumpled it up after a glance. It seemed to him their promotional field work was getting worse; overtly mystical appeals wouldn't work with JPL's staff.

He passed through three sets of guards, grudgingly showed his badge — the lab was a prime target for the bombers, but it was a nuisance nonetheless — and made his way down chilly, neon-bleached corridors. When he reached his office he found Kevin Lubkin, Mission Coordinator, already wait-

ing for him. Nigel moved some issues of *Icarus*, the scholarly journal, out of a chair for Lubkin, pushed them into the heap of papers on his desk and raised the blinds of his window to let one pale blade of light lance across the opposite wall. He worked in a wing without air conditioning, and it was a good idea to get some cross ventilation going as soon as possible; the afternoon was unforgiving. Then, too, he adjusted the blinds each morning as a ritual beginning of work and so uttered nothing more than a greeting to Lubkin until it was done.

"Something wrong?" he asked then, summoning up an artificial alertness.

Kevin Lubkin, distracted, closed a folder he had been reading. "Jupiter Monitor," he said tersely. He was a burly red-faced man with a smooth voice and a belly that had begun to bulge downward, concealing his belt buckle.

"Malfunction?"

"No. It's being jammed." He flicked a blank look at Nigel, waiting.

Nigel raised an eyebrow. An odd tension had suddenly come into the room. He might still be relaxed from breakfast, but he wasn't so slow that he could be taken in by an office sendup. He said nothing.

"Yeah, I know," Lubkin said, sighing. "Sounds impossible. But it happened. I called you about it but —"

"What's the trouble?"

"At two this morning we got a diagnostic report from the Jovian Monitor. The graveyard shift couldn't figure it out. So they called me. Seemed like the onboard computer thought the main radio dish was having problems." He took off his creamshell glasses to cradle them in his lap. "That wasn't it, I decided. The dish is okay. But every time it tries to transmit to us, something echoes the signal back after two minutes."

"Echoes?" Nigel tilted his chair, staring at titles on his bookshelves while he ran the circuit layout of the J-Monitor's radio gear through his mind. "Two minutes is far too long for any feedback problem — you're right. Unless the whole program has gone sour and the transmissions are being retaped by Monitor itself. It could get confused and think it was reading an incoming signal."

Lubkin waved a hand impatiently. "We thought of that."

"And?"

"The self-diagnostics say no — everything checks."

"I give up," Nigel said. "I can tell you've got a theory, though." He spread his hands expansively. "What is it, then?"

"I think J-Monitor is getting an

honest incoming signal. It's telling us the truth."

Nigel snorted. "How did you muddle through to that idea?"

"Well —"

"Radio takes nearly an *hour* to reach us from Jupiter at this phase of the orbit. How is anyone going to send Monitor's own messages back to it in two minutes?"

"By putting a transmitter in Jupiter orbit — just like Monitor."

Nigel blinked. "The Sovs? But they agreed —"

"No Soviets. We checked on the fastwire. They say no, they haven't shot anything out that way at all in a coon's age. Our intelligence people are sure they're leveling."

"Chinese?"

"They aren't playing in our league yet."

"Who, then?"

Lubkin shrugged. The sallow sagging lines in his face told more than his words. "I was kind of thinking you might help me find out."

There was a faint ring of defeat in the way the man said it — Nigel noted the tone because he had never heard it before. Usually Lubkin had an aspect of brittle hardness, a cool superior air. Now his face was not set in its habitual aloof expression; it seemed open, even vulnerable. Nigel guessed why the man had come in himself at two A.M., rather than delegating the job — to show his people, without having to tell them in so many words, that he could do the work himself, that he hadn't lost the sure touch, that he understood the twists and subleties of the machines they guided. But now Lubkin hadn't unraveled the knot. The graveyard shift had departed into a gray dawn, and so now he could safely ask for help without being obvious.

Nigel smiled wryly at himself. Always calculating, weighing the scales.

"Right," he said. "I'll help."

III

The morning passed in puzzled argument.

Nigel wasn't totally willing to abandon the hypothesis that Jupiter Monitor had malfunctioned. The flight engineers — a flinty crew, skeptical of nonspecialists, fond of jargon — thought otherwise. They gave ground grudgingly, pitting sweet cool reason against Nigel's vague doubts. A complete run-through of J-Monitor's error-detection modes, a new diagnostic analysis, a hand-check of transmissions — all showed nothing wrong. There was no mechanical flaw.

The quirky echo had faded away a little after three A.M. The monitor was no longer in its original ellipse around Jupiter; a month earlier its engines had

stirred awake and fired, to nudge it into orbit around Callisto, fifth moon of Jupiter. Now it spun an elaborate orange-slice orbit, lacing over the icy glare of Callisto's poles every eight hours.

Nigel snapped a cracker in half and swallowed it with some lukewarm tea. He closed his eyes to the *ting* and clatter of telemetry. The flight engineers had finally gone back to their burrows, and now he and Lubkin sat in the main control bay, at one of the semicircular tables; digital arrays ringed them.

"That puts paid to the simple ideas, then," Nigel said. "I suppose we'd best have a glance at the Callisto orbit."

"Don't follow," Lubkin said.

"If the signal came from a source *outside* J-Monitor, something cut it off. The echo must've faded because Callisto came between the source and J-Monitor."

Lubkin nodded. "Reasonable. The same thing had occurred to me, but —" he looked at his watch. "It's almost noon. Why didn't the echo return around seven or so this morning, when J-Monitor came out from behind Callisto?"

Nigel had the uncomfortable feeling that he was playing the role of dull-witted graduate student to Lubkin's learned professor. But then, he realized, that was precisely the impression a skillful administrator would try to create.

"Well ... maybe the other source is occluded by Jupiter itself. Now *it's* blotted out."

Lubkin pursed his lips. "Maybe, maybe."

"Can't we rough out some sort of orbit for the source, given a triangulation with Callisto?"

Lubkin nodded.

One third of a light-year from the burning nugget of the star, the craft surveyed the livable volume and found it good. There was no sign of a large planet like the yellow-brown gas giant circling further out. This was a crucial test, for a massive world, close in, would have made another stable orbit impossible within the life-giving volume. Had the ship found such a planet, it was under standing orders — encrusted, ingrained, so old they functioned as instincts — to accelerate through the system, gathering all possible data for the astrophysical index, and chart a course for the next in a lengthy record of candidate suns.

Instead, the ship quickened the rumble of deceleration. It uncapped its telescope more frequently and peered ahead for longer intervals. A blue-white splotch resolved into another gas-giant planet, smaller than the first and further out. Its image resisted precision. The craft noted a blurred circlet of bluish light and speculated that the body might be ringed, a not uncommon occurrence among heavy planets.

Another massive planet was found, then another, each farther

from the star. The machines began lowering their estimates of the possibility of life in this system. Still, past experience held out a glimmer of hope. Small dim worlds might lie farther in, even if the weight of theory and observation made it seem unlikely. By fluke, the ship could be approaching from the night side of a world and miss it entirely. The craft waited.

At one-sixth of a light-year out the computers found an ambiguous smear of blue and brown and white: a planet near the star. Reward circuits triggered. The machines felt a spasm of relief and joy, a seething electric surge within. They were sophisticated devices, webs of impulses programmed to want to succeed, yet buffered against severe disappointment if success eluded them.

For the moment they were content. The ship flew on.

Spherical trigonometry, the vectoring line of J-Monitor's main dish, calculus, orbital parameters, estimates, angles. Check and recheck.

Slowly, the most probable answer emerged — 3:30 P.M., an hour away. By then the source should arc into view of J-Monitor's main dish. Nigel imagined it as a dot of light slowly separating from the churning brown bands of Jupiter, rising above the horizon. As it traced its own ellipse, J-Monitor would be surveying the snow fields of Callisto below with its own mechanical intensity; craters, wrinkled hill lines, fissures, glinting blue ice mountains.

"One hour," Lubkin said.

"Can we realign the Viking's main dish that quickly, without disturbing the surveying routine?" Nigel asked.

"We'll have to," Lubkin replied firmly. He picked up the telephone and dialed operations control.

"Tell them to rotate the camera platform, too," Nigel said quickly.

"You think there'll be anything to see at that range?"

Nigel shrugged. "Possibly."

"The narrow-angle camera? We can't move both in —"

"Right. We should work out a set of shots. Use the filters, stepping down from ultraviolet to IR. They can sequence automatically."

Lubkin began speaking rapidly and precisely into the telephone, smiling confidently now that there were orders to be given, men to be told.

The ship was still cruising in deep silence, far from the star's healing warmth, when it began to discern radio waves. More of the higher functions of the craft came alive. The weak signals were weighed and sifted. Filtering away the usual sputtering star noise, they found a faint trace of emission localized to the planets.

The most powerful source was the innermost gas giant. This was an

optimistic sign, for the world did orbit fairly near its star. If it had merely a transparent atmosphere, it would be too cold, but analysis showed it to be cloaked in thick, deep clouds. Such planets could warm themselves, the ship knew, by gravitational contraction and by heat-trapping — the greenhouse effect. Life could well evolve in their skies and seas.

Still, such clotted blankets of gas and liquid meant awesome pressures. Life in similar worlds rarely developed skeletons and thus could not manipulate tools; the ship's log carried many instances of this. Trapped in their deep bowl of ammonia and methane, free of technology's snarls, such creatures could not communicate — and the ship could assuredly not fly into such pressures in search of them.

A smaller source of radio waves lay further inward. It was the third planet, blue and white. The signals wove complex overlapping patterns, faint tremors that could be atmospheric phenomena: thunderstorms, lightning flashes, perhaps radiation from a magnetosphere. Still, the world was wrapped in a clear gas, a hopeful sign. The craft flew sunward.

By six P.M. they became discouraged. The monitor's main dish was reprogrammed to carry out a methodical search pattern around the spot where the unknown radio source should appear.

It was functioning. The data were coming in. All operations were proceeding smoothly. And there were absolutely no results.

The flight engineering staff was milling about, writing day-summary reports, ready to go home. To them, the echo problem was a temporary aberration that had cleared up of itself. Until it reappeared, no cause for alarm.

The target should have emerged from Jupiter's rim at 3:37, according to revised estimates. Given the time lag in signals from Jupiter, operations control began receiving data slightly before 4:30 P.M. The main dish's search was completed within an hour. They couldn't use the narrow-angle camera — not enough technicians were free from the Mars Burrower and the planetary satellites. In any case, nothing indicated that there was anything worth seeing.

"Looks like balls-up on that," Nigel said.

"Either the whole idea is a pipe dream —" Lubkin began.

"Or we haven't got the orbit right," Nigel finished. An engineer in portable headphones came down the curved aisle, asked Lubkin to sign a clipboard, and went away.

Lubkin leaned back in his roller chair. "Yeah, there's always that."

"We can have another go tomorrow."

"Sure." Lubkin did not sound particularly enthusiastic. He got up from the console and paced back and forth in the aisle. There wasn't

much room; he nearly bumped into a technician down the way who was checking readouts at the antenna systems console. Nigel ignored the background murmur of the control bay and tried to think. Lubkin paced some more. The pair studied their green television screens, tilted backward for ease of viewing, where sequencing and programming data were continually displayed and erased. Occasionally the computer index would exceed its allowed parameter range, and the screen would jump from yellow-on-green to green-on-yellow. Nigel had never gotten used to this; he remained disconcertingly on edge until someone found the error and the screen reverted.

The console telephone rang, jarring his concentration still further. "There's an external call for you," an impersonal woman's voice said.

"Put them off a bit, will you?"

"I believe it's your wife."

"Ah. Put her on hold."

He turned to Lubkin. "I'd like to get the camera free tomorrow."

"What's the use?"

"Call it idle speculation," he said shortly. He was rather tired and wasn't looking for an argument.

"Okay, try it," Lubkin said, threw down his pencil and labored to his feet. His white shirt was creased and wrinkled. In defeat he seemed more likable to Nigel, less an edgy executive measuring his moves before he made them. "See you tomorrow," Lubkin said and turned away, shoulders slumped.

Nigel punched a button on the telephone. "Sorry I took so long, I—"

"Nigel, I'm at Doctor Huffman's."

"What's—"

"I, I need you here. Please." Her voice was thin and oddly distant.

"What's going?"

"He wants to talk to both of us."

"Why?"

"I don't know, really. Not totally."

"What's the address?"

She gave him a number on Thalia. "I'm going down for some lab tests. A half hour or so."

Nigel thought. "I don't know which bus serves that—"

"Can't you ...."

"Certainly. Certainly. I'll sign off for a lab car, tell them it's for business tomorrow."

"Thank you, Nigel. I, I just ...."

He pursed his lips. She seemed dazed, distracted, her executive briskness melted away. Usually the efficient manner did not seep from her until evening.

"Right," he said. "I'm leaving now."

IV

A gray haze layer cut off all buildings at the fourth story, giving Thalia Avenue an oddly truncated look. The cramped car labored along with an occasionally irregular *pocketa-pocketa* as Nigel leaned out the window, searching for building numbers. He had never become accustomed to the curious American reticence about disclosing addresses. Immense, imposing steel and concrete masses stood anonymously, challenging the mere pedestrian to discover what lay inside. After some searching, 2636 Thalia proved to be a low building of elegant striated stonework, the most recent addition to the block, clearly assembled well after the twentieth-century splurge of construction materials.

Dr. Hufman's waiting room had the hushed antechamber feel to it that marked the private practice. A public medical center would've been all tile and tan partitions and anonymous furniture. As he walked in, Nigel's attention returned to Alexandria's unspoken tension, and he looked around the waiting room, expecting to see her.

"Mister Walmsley?" a nurse said from a glass-encased box that formed one wall of the room. He advanced.

"Where is she?" He saw no point in wasting time.

"In the laboratory, next door. I wanted to explain that I didn't, we didn't know Miss Ascencio was, ah ...."

"Where's the lab?"

"You see, she filled out her form as Single and gave her sister as person to be notified. So we didn't know —"

"She was living with me. Right. Where's —"

"And Doctor Hufman likes to have both parties present when ...."

"When what?"

"Well, I, ah, only wanted to apologize. We, I would have asked Miss Ascencio to come with you if we had —"

"Mister Walmsley. Come in."

Doctor Hufman was an unremarkable man in an ill-fitting brown jacket, no tie, large cushioned shoes. His black hair thinned at the temples, showing a marble-white scalp. He turned and walked back into his office without waiting to see if Nigel would follow.

The office differed in detail but not general theme from every other doctor's office Nigel had ever seen. Old-fashioned books with real bindings, some of them leather or a convincing synthetic. Long lines of medical journals, mostly out of date, marched across the shelves on one wall, punctuated by a model ship here and there. On the desk and a side table were collections of stubby African dolls. Nigel wonder-

ed if physicians were given a course in med school in interior decorating, with special emphasis on patient-soothing bric-a-brac, restful paintings and humanizing oddments.

He began to sit down in the chair Hufman offered when a door opened to his left and Alexandria stepped in. She hesitated when she saw Nigel and then closed the door softly. Her hands seemed bony and white. There was in her manner something Nigel had never seen before.

"Thank you, dear, for coming so quickly."

Nigel nodded. She sat in another chair and both turned toward Hufman, who was sitting behind a vast mahogany desk, peering into a file folder. He looked up and seemed to compose himself.

"I've asked that you come over, Mr. Walmsley, because I have some rather bad news for Miss Ascencio." He spoke almost matter-of-factly, but Nigel sensed a balanced weight behind the words.

"Briefly, she has systemic lupus erythematosus."

"Which is?" Nigel said.

"Sorry, I thought you might have heard of it."

"I have," Alexandria said quietly. "It's the second most common cause of death now, isn't it?"

Nigel looked at her questioningly. It seemed an unlikely sort of thing for Alexandria to know, unless — unless she'd guessed ....

"Yes, cancer of all sorts is still first. Lupus has increased rapidly in the last two decades."

"Because it comes from pollution," she said.

Hufman leaned back in his chair. "That is a common opinion. It is very difficult to verify, of course, because of the difficulty in isolating influences."

"What is it?" Nigel said.

"Oh. A disease of the connective tissue, Mister Walmsley. It strikes primarily the skin, joints, kidneys, heart, the fibrous tissue that provides internal support for the organs."

"Her sprained wrists —"

"Exactly, yes. We can expect further inflammation, though not so much as to create a deformity. That is only one symptom, not the total disease, however."

"What else is there?"

"We don't know. It's an insidious process. It could reside in the joints or it could spread to the organs. We have very little diagnostic capability. We simply treat it —"

"How?"

"Aspirin," Alexandria said mildly with a wan smile.

"That's absurd!" Nigel said. "Fixing up a disease with —"

"No, Miss Ascencio is correct,

as far as she goes. That is the recommended course for the mild stages. I'm afraid she is beyond that now, though."

"What'll you give her?"

"Corticosteroid hormones. Perhaps chloroquine. I want to stress that these are not cures. They offer only symptomatic relief."

"What does cure it?"

"Nothing."

"Well, hell —! There's *got* to be —"

"No, Nigel," she said. "There doesn't have to be anything."

"Mister Walmsley, we are dealing with a potentially fatal disease here. Some specialists attribute the rise of lupus to specific pollutants such as lead or sulfur or nitrogen compounds in auto exhausts, but we truly do not know its cause. Or cure."

Nigel noticed that he was clenching the chair arms. He sat back and put his hands in his lap. "Very well."

"Miss Ascencio's condition is not acute. I must warn you, however, that the subacute or chronic stage of this disease has been getting shorter and shorter as if its frequency among the population increases. There are also cases in which the disease persists but is not ultimately fatal."

"And —?" she said

"Other cases sometimes go to completion within a year. But that is *not* an average. The course of the illness is totally unpredictable." He leaned forward earnestly to emphasize the point.

"Simply take the drugs and wait, is that what you advise?" Alexandria said.

"We will keep close track of your progress," Hufman said precisely. "Any flare-up we can probably control with more powerful agents."

"What is it that kills people, then?" she said.

"Spread to the organs. Or, worse, interception of the connective tissue in the nervous system."

"If that happens —" Nigel began.

"We often don't know right away. Occasionally there are early convulsions. Sometimes a psychosis developes, but that is rare. The clinical spectrum of this disease is broad."

Nigel sat and listened as the man went on, Alexandria with her hands folded neatly, the man's voice droning in the soft air with facts and theories, his broad forefinger occasionally tapping Alexandria's file to reinforce a point, his sentences paraded out to display new facets of systemic lupus erythematosus, lockjawed Latinism, words converging like a pack of erudite wolves to devour some new snippet of causation; disgnosis; remission; exacerbation. Nigel

took it all, numbly, sensing a dim tremor within his chest that went unnamed.

During the drive home he concentrated. Traffic was always thin since the demise of the private automobile, and the broad avenues of Pasadena seemed an infinite plane over which they skated with Newtonian skill. He played the game of his youth, when everyone drove but fuel was excruciatingly short. He watched the lights flick yellow red green and timed his approach, seeking the path of minimum energy. It was best to glide the last third of a block, letting road friction and the gentle brushing wind slow them until the red popped over to green. If his timing was off, he would down-shift to third, then second, storing the kinetic life that he envisioned as a precious fluid moving within the car, poured into temporary bottles somewhere between engine and axle. Making a turn, he would wait until the last moment before shifting, hoping to stretch the green time, then slapping the stick forward, bringing the turgid car to a humming peak, tires howling slightly with expended energy. They arced into a new linear path, vectoring on the Pasadena grid toward the hills. Thus he played again the game of his youth, lines creasing his face.

"You can't accept it, can you, Nigel?" she said in the long silence.

"What?"

She reached over and caressed his forearm, fluffing up the blonde hair. Her own gesture; no other woman had ever touched him that way. "Ease into it," she said.

He let the silence between them grow as several blocks of neon consumer gumbo passed, the sandwich parlors pooled in wan yellow.

"I'll try. But sometimes, I ... I'll try."

Something blazed ahead. As they approached they could make out a large bonfire in a ruined field, flames licking at the cup of darkening sky. Figures moved against the lemon flickering.

"New Sons," he said.

"Slow," she said. He lifted his foot and she studied the fire.

"Why is it round?" she murmured.

"It's an annular flame. One of their symbols."

"The secret center. Godhood in every person."

"I suppose."

Several figures turned from the playing flames and waved their arms toward the car, beckoning.

"They pile their scrap wood in a circle, leaving the center clear. One pair is left there when they light it. For the duration of the fire they are free. They can dance or —"

"How do you know all this?" he said.

"Someone told me."

A tall woman detached herself from the weaving line of figures and moved toward the street, toward their car. She was the focus of multiple, shifting shadows.

Nigel shifted into first and they surged away into the dim and desiccated night.

"Freedom at the center," he murmured. "License for public rutting, I'll wager."

"So I've heard," she said mildly.

When they let themselves into the apartment Shirley was lying on the couch, reading. "You're late," she said sleepily.

Nigel explained about the car, about Doctor Hufman, and then it all came out in a rush, Alexandria and Nigel alternating in the telling. Lupus. Sore wrists. Connective tissue. Chloroquine. Swelling joints.

Shirley got up wordlessly and embraced each of them. Nigel chattered on for a bit, filling the room with busy, comfortable sound. Into the darting talk Alexandria inserted a mention of supper, and their attention deflected to the practicalities of the meal. Nigel offered to do up some simple chopped vegetables in the wok. Rummaging through the refrigerator revealed a total absence of meat. Alexandria volunteered to walk down the two blocks to a grocery store and, without debating the issue, slipped out. Nigel was busy with an array of celery and onions on the chopping block as the door closed behind her, and Shirley was washing spinach, snapping off the stems as she went.

At once a silence descended between them.

"It's serious, isn't it?" she said. He looked up. Shirley's dark eyebrows were compressed downward, forming long ridges beneath her towering stack of black hair.

"I gather so." He went back to chopping. Then, suddenly? "Shit! I wish I knew, really knew."

"Hufman doesn't sound very sympathetic."

"He isn't. I don't think he intended to be. He simply told us the bloody facts in that flat voice of his."

"It takes a while," she said softly, "to come to terms with facts."

He rapped the block with the cleaver, scattering onion cuttings. "Right."

"What do you think we ought to do?"

"Do?" He stopped, puzzled. "Wait. Go on, I suppose."

Shirley nodded. She rolled up the sleeves of her shimmering blue dress, bunching it above the

elbows. She handed him the spinach in aligned stacks, ready for cutting. "I think you ought to travel," she said.

"Eh? What for?"

"To take her mind off it. And yours."

"Don't you think her usual, settled routine is more the thing?"

"That's just the point," Shirley said abruptly, an edge to her voice. "You two are stuck here because you don't want to leave your work at JPL—"

"And she doesn't either," he said evenly. "She has a career."

"Damn it!" She threw down a wad of spinach. "She could be dead in a year! Don't you think she realizes that? Even if you don't?"

"I realize it," he said stiffly.

"Then act like it!"

"How?"

Shirley's mood changed abruptly. "If you become more flexible, Nigel, she will, too. You're so absorbed in that damned laboratory, those rockets, you can't see it." Her lips parted slightly, puckering outward infinitesimally. "I love you both, but you're so fucking *blind*."

Nigel put his chopping knife aside. He was breathing in quick little gasps, he noted, and wondered why. "I ... I can't simply throw it all over ...."

Shirley's eyes moistened and her face seemed to draw downward. "Nigel ... you think all this space research is so important, I *know* that. I've never said anything until now. But now your obsession can hurt Alexandria terribly in ways you may never even *see*."

He shook his head dumbly, blinking.

"If the work was so vastly important, I wouldn't say anything. But it isn't. The real problems are here on Earth—"

"Buggering nonsense."

"They *are*. You slave away at this business—"

"Better that, than a job handing out the daily dole."

"Is *that* what you think I do?" She said, voice teetering between acid and genuine curiosity.

"Well ...."

"No backing and filling. Is it?"

"Not quite. I *do* know it's not my sort of thing."

"With your intelligence, Nigel, you could make real contributions to—"

"Human problems, as you call them, are seldom accessible to intelligence alone. It takes patience. A warm touch, all that. You've got it. I don't."

"I think you're very warm. Below that surface, I mean."

"Uh," he said wryly.

"No. You are. I, I know you are in some ways, or else you and I and Alexandria wouldn't be possible, it couldn't work."

"*Does* it work?"

"I think so," she said, almost in a whisper.

"Sorry. I didn't mean that. Just lashing out."

"We need people in the project at Alta Dena. It's not easy, creating a sense of community after all that's happened. Those socio-metricians —"

"Haven't a clue about making it work, I know. Good for diagnostics and precious little else."

"Yes." Her fine-boned face took on a bleak, introspective look.

"I think you should stay over tonight."

"Yes, of course."

The front door clicked open then, Alexandria returning with lean cuts of flank steak. The mere presence of so much meat implied that the occasion was festive, and Nigel resumed chopping, silent, pondering the details of whether to open a bottle of red wine before the cooking began. Without having time to absorb the meaning of what Shirley had said, he slipped into the enfolding routine and ritual of evening.

Each time with Shirley he found some new depth, some unexplored flavoring, a sea change. The revelation always came at that place where all parts of her converged; his head cradled between her thighs, the salt musk aswarm in his nostrils. Alexandria's presence was a warm O sliding from base to head of his penis. He was an arched segment of their ring. His hands stretched toward where Shirley and Alexandria intersected, Shirley's black hair mingling with Alexandria's pubic brown. His arms made an unsuccessful chord to the circle, too short; he turned his hands and felt the puckering of Shirley's nipple. His tongue worked. Shirley's ample ass was a moist, cooling resilience under his massaging hand. The equilibrium between the three shifted and resolved: Alexandria's tongue fluttered him to new heat; Shirley drew down Alexandria's breasts, cupping them and rolling the perked nipples between her long fingernails, like marbles. Here they were at their best, he knew. Here the machinery of their bodies spoke what words could not or would not. He felt Shirley's edgy tension in her hip, which trembled with concealed energy. He sank into Alexandria's encased calm, her mouth fluid and impossibly deep. He felt his own knotted confusion focus in a thrusting jerk, battering against her throat. Yes, here was their center. Loving, they hauled each other's bodies as though sacks of sand, stacking them against the waters that surrounded Alexandria, and thus now enveloped all three of them.

Shirley moved. Her legs released him and her hand caressed the back of his neck where two rigid bands formed a valley between. She smiled in the dusky light. Their bodies moved to a new geometry.

V

By the time the craft entered the system it knew the planetary population. Of the nine planets, four held promise. All but the farthest inward could be resolved into a disk now. There was a completely clouded world near the star. Next outward came the smaller radio-emitter; it showed sharp oxygen lines and an occasional blue glint hinted at oceans. A smaller world came next, dry and cold, with odd markings.

But for now the craft's attention focused on the fourth possibility, the huge banded giant. Its radio emissions were broad, covering much of the spectrum, as though the source were natural. But they seemed keyed to an amplitude pattern that repeated nearly identically, at a constant period.

The pinkish-brown world seemed an unlikely site for a technological society. Other considerations entered here, however: time and energy. The craft's engines worked inefficiently at these low speeds. Yet it needed to alter momentum and flatten its trajectory into the plane of the ecliptic. A flyby of the large planet could save engine strain and time. Looping through its gravitational field, picking up momentum from the vectoring forces, would allow a detailed study while the ship was launched sunward along a more desirable course.

Its higher functions debated.

With a mild rumble it altered the timbre of its engines. Gas giant or no, the radio pattern could not be ignored. It swung smoothly toward the waiting world.

"The aft camera nailed it," Nigel said.

"What? You found the trouble?" Lubkin got up with surprising agility and walked around his desk.

"No malfunction. Those echoes were real, the engineers pegged it right. We've got a Snark."

Nigel tossed a sheaf of fax sheets on the desk. They were shiny even in the muted office light, yellow squiggles on green stripping.

"Snark?"

"Mythical English creature."

"Something's really out there?"

"These are optical and spectroscopic analyses. Telemetery errors already corrected and numerically smoothed." He pulled one sheet from the pile and pointed at several lines.

"What is it?"

"Our Snark gives off all the lines of a fusion torch burning pretty bright. Nearly a billion degrees."

"Come *on*." Lubkin gave him a skeptical look, eyes screwed up behind his pale glasses.

"I checked it with Knapp."

"Damn," Lubkin said. He shook his head. "Funny."

"J-Monitor got one clear look at

it before Callisto came into the way again. Couldn't avoid that, even with the new orbit we put it into" He slid a glossy optical photograph out of the stack.

"Not much to see," Lubkin said. Near one corner was a tiny orange splotch against a dead black background. Lubkin shook his head again. "And this was through the *small*-angle telescope? Must be pretty far away."

"It was. Almost all the way diagonally across the Callisto orbit. I don't think we'll be able to spot it again on the next pass."

"Any radio contact?"

"None. No time. I tried when I first came in this morning, registered something — didn't know what, right away — and couldn't get a good enough fix on it, with that photo. The narrow radio beam that Monitor's main dish puts out needs a better fix."

"Try again."

"I did. Callisto got in the way, then Jupiter itself."

"Shit."

Both men stood, hands on hips, staring down at the fax sheets. Their eyes traced through the matted patterns, noting details, neither of them moving.

"This is big news, Nigel."

"I expect."

"I think we ought to sit on it for a while. Until I get a chance to speak to the director."

"Ummm. Suppose so."

Lubkin looked at him steadily.

"There's not much question about what this thing is."

"Not one of ours," Nigel said. "Dead on about that."

"The higher ups will have to decide what to do —"

"Bugger *that*."

"What?"

"I found it. I want in on it. Remember that." Nigel scowled savagely. *Politics. Committees. Jesus!*

The gas giant had been a disappointment. The nonrandom radio emissions were natural in origin, keyed to the orbital period of its reddish inner moon. Methodically, the craft analyzed the larger moons and found only ice fields and gray rock.

As it whipped by the giant planet on an artful parabola, it decided to focus on the water world. The signals from there were clearly artificial. But as it did so, a brief radio burst caught its attention. The signal showed high correlations, but not enough to rule out a natural origin; there were many well-ordered phenomena in nature. Incredibly, the source was nearby.

Following standing order, the ship retransmitted the same electromagnetic signal back at the source. This happened several times, quite quickly, but with no sign from the source that the ship's transmission had been received. Then, abruptly, the signal stopped. Nothing spiked up from the wash of static.

The ship pondered. The signal might well have had a natural cause,

particularly in the intense magnetic fields surrounding the gas-giant planet. Without further investigation there was no way to decide.

The source seemed to be the fifth moon, a cold and barren world. The ship was aware that this moon was tide-locked to the gas giant, keeping the same side eternally facing inward. Its revolution with respect to the ship was therefore rather slow. It seemed unlikely, then, that the source of the radiation would have slipped below the visible edge so quickly.

As well, the signal strength was low, but not so weak that the ship could not have detected it before. Perhaps it was another radiation pattern from the belts of trapped electrons around the planet, triggered by the fifth moon rather than the first.

The ship thought and decided. The hypothesis of natural origin seemed far more likely. It would cost fuel and time to check further, and the region near the gas giant was dangerous. Far wiser, then, to continue accelerating.

It moved sunward, toward the warming glow.

Nigel took the last bus home from work. He lounged back, thinking of the Snark and his past. He'd been an astronaut. The first British spacer, in a cooperative program with NASA. And gradually he'd been absorbed, become a virtual American, all but for his accent and a few odd opinions. If he'd pushed he could have gotten into the more visible parts of the space program — the cylinder cities, *cylcits*, a building out near the moon. Create a world, fresh and clean. *Cylcits;* perfectly American perversion of an admittedly whorish language. The cylcits needed raw materials; Earth needed pollution-free manufacturing sites, low-gee environments; and it all had to come at bargain basement prices. But putting together those tinkertoy cylcits demanded agility, youth ....

Someday he might get back into zero-gee work, but he doubted it. His waist was thickening. The loyal sloshing of his heart now ran at a higher blood pressure, and he was forty-one.

Time, everyone hinted, to move on.

To what? Administration? The synthetic experience of directing other people's work? No, he had never learned to smile without meaning it. Or to calibrate the impact of his words. He said things spontaneously; his entire life was done in first draft.

He stared out at the carved Pasadena hills. Some other career, then? He had written a longish piece on being the only European astronaut, some years back, for *Worldview*. It had been well received, and for a while he'd contemplated becoming immersed in litbiz. It would give him a vent for his quirky puns. Perhaps it would drain the occasional souring bile that rose up in him.

No, thumbs-down to that. He

wanted more than the act of excreting himself onto pieces of paper.

He snorted wryly to himself. There was an old Dylan lyric that applied here: the only thing he knew how to do was to keep on keepin' on.

Like it or not.

VI

"It started in on my ankles this afternoon."

He stopped, his hand halfway raised to beckon a waiter. "What?"

"My ankles ache. Worse than my wrists."

"You're taking the chloroquine?"

"Of course. I'm not *stupid*," Alexandria said irritably.

"Perhaps it takes a few days to settle in. To have an effect," he said with false lightness.

"Maybe."

"You may feel better after you've had a bite. What about the birani?"

"Not in the mood for that."

"Ah. Their curries are always sound. Why don't we share one, medium hot?"

"Okay." She sat back in her chair and rolled her head lazily from side to side. "I need to unwind. Order me a beer, would you? *Lacanta*."

In the layered air, heavy with incense, she seemed to hover at a dreamy distance. Two days had passed since he'd spotted the Snark, and he hadn't told her yet. He decided this was the right moment; it would distract her from the ache in her joints.

He caught a waiter's eye and placed their order. They were cloistered near the back of the restaurant, sheltered by a clicking curtain of glass beads, unlikely to be overheard. He spoke softly, scarcely above the buzz of casual conversation provided by the other diners.

She was excited by the news and peppered him with questions. The past two days had revealed nothing new, but he described in detail the work he'd done in organizing the systematic search for further traces of the Snark. He was partway through an involved explanation when he noticed that her interest had waned. She toyed with her food, sipped some amber beer. She glanced at diners as they entered and left.

He paused and dug away at the mountain of curry before him, added condiments, experimented with two chutneys. After a polite silence she changed the subject. "I, I've been thinking about something Shirley said, Nigel."

"What's that?"

"Doctor Hufman recommended rest as well as these pills. Shirley

thinks the best rest is absence from the day-to-day." She gazed at him pensively.

"A vacation, you mean?"

"Yes, and short trips here and there. Outings."

"This Snark thing is going to snarl up my time pretty —"

"I know that. I wanted to get in my bid first."

He smiled affectionately. "Of course. No reason we can't nip down to Baja, take in a few things."

"I have a lot of travel credit built up. We can fly anywhere in the world on American."

"I'm surprised you want to give up a great deal of time, with these negotiations going on."

"They can spare me now and again."

As she said it, the expression altered around her brown eyes, her mouth turned subtly downward and he saw suddenly into her, into a bleak and anxious center.

The busses still ran frequently when they left the restaurant. Two police in riot jackets checked their identification faxcodes and then passed on down the street. The two women stopped each couple they met and demanded identification, one standing away at a safe distance with stunclub drawn while the other checked the ferrite verification matrix in the faxcodes. Nigel was so used to this that he wasn't looking when a woman suddenly bolted away from the police and dashed into a department store. Her male companion looked surprised and then was forced to the ground by a policewoman. The other policewoman drew a pistol and ran into the store. The man was yelling something, protesting. The policewoman rapped him with her stunclub, and his face whitened. He slumped forward. Muffled shots came from inside the department store.

Their bus arrived. Without a thought Nigel climbed on.

Alexandria stood watching the man weakly trying to get to his knees. Her lips curled back in distaste and she started to say something, when he called her name.

After a moment she numbly climbed the steps into the bus, legs moving woodenly. She sat down next to him and breathed deeply. The bus wheezed into motion. As they passed the man on the sidewalk, a policewoman's knee in his back, he stared glassily at the broken paving.

Before Lubkin could finish his drawling sentence, Nigel was out of his chair, pacing.

"You're damned right I object to it," Nigel said. "It is the most stupid bloody —"

"Look, Nigel, I sympathize with you completely. You and I are scientists, after all."

Nigel thought sourly that he could quite easily marshal a good argument against that statement alone, at least in Lubkin's case. But he let it ride.

"We don't like this secrecy business," Lubkin went on. He chose his words carefully. "However. At the same time. I can understand the need for tight security in this matter."

"For how long?" Nigel said sharply.

"Long?" Lubkin hesitated. Nigel guessed that the rhythm of his prepared speech was broken. "I really don't know," the other man said lamely. "Perhaps for the indefinite future, although —" he speeded up, to cut off Nigel's reaction — "we may be speaking of a mere matter of days. You understand."

"Who says?"

"Well, the director, of course. He was the first. He thought we should go through military channels as well as civilian."

Nigel ceased pacing and sat down. Lubkin's office was illuminated only around his desk, the corners gloomy. To Nigel's mind's eye, the effect of the pooled light was to frame him and Lubkin as though in a prizefighter's ring, two antagonists pitted across Lubkin's oaken desk. Nigel hunched forward, elbows on knees, and stared at the other man's puffy face.

"Why in *hell* is the goddamned Air Force —"

"They would find out about it *any*way, through channels."

"Why?"

"We may need their deepspace sensor network to track the, ah, Snark."

"Ridiculous. That's a near-Earth net."

"Maybe that's where the Snark is heading."

"A remote possibility."

"But a nonzero one. You have to admit that. This could be of importance in world security, too, you know."

Nigel thought a moment. "You mean if the Snark approaches Earth, and the nuclear monitoring system picks up its fusion flame —"

"Yes."

"— and thinks it's a missile, or a warhead going off —"

"You must admit, that *is* a possibility."

Nigel balled up his fists and said nothing.

"We keep this under our hats by telling no one extra," Lubkin said. "The technicians never got the whole story. If we say nothing more, they'll forget it. You, I, the director, perhaps a dozen or two in Washington and the U.N."

"How in hell do we *work*? I can't oversee every flamin' planetary monitor. We need shifts —"

"You'll have them. But we can break the work down into piecemeal studies. So no one technician or staff engineer knows the purpose."

"That's inefficient as hell. We've got a whole solar system to search."

Lubkin's voice became hard and flat. "That's the way it's going to be, Nigel. And if you want to work on this program ...." He did not finish the sentence.

At the Los Angeles County Museum:

Alexandria leaned over to study the descriptive card beneath the black and gray sculpture. "Devadasi performing a gymnastic sexual act with a pair of soldiers who engage in swordplay at the same time. This scene records a motif for a spectacle. South India. 17th Century." She arched her back in imitation of the Devadasi, getting about halfway over.

"Looks difficult," he said.

"*Impossible*. And the angle for the fellow in front is basically wrong."

"They *were* gymnasts."

Reflectively: "I liked the big one back there better. The one who carried men off in the night for 'sexual purposes' — remember?"

"Yes. Delicate phrasing."

"Why did she have a touch-hole in her vulva?"

"Religious significance."

"Ha!"

"Maintenance purposes, then. It probably short-circuited the occasional desire to carve one's initials in her."

"Unlikely," she said. "Ummm. 'The eternal dance of the yogini and the lingam,' it says, on this next one. Eternal." She gazed at it for a long moment, and then turned quickly away. Her mouth sagged. She wobbled uncertainly on the glossy tiles. Nigel took her arm and held her as she limped toward a row of chairs. He noticed that the gallery was oddly hushed. She sat down heavily, air wheezing out in a rush. She swayed oozily and stared straight ahead. Her forehead beaded with sudden perspiration. Nigel glanced up. Everyone in the gallery had stopped moving and stood, watching Alexandria.

"She ought to quit that damned job *now*," Shirley said adamantly.

"She likes it."

Nigel sipped at his coffee. It was oily and thick, but still probably better than what he could get at work. He told himself that he should get up and clear away the breakfast dishes, now that Alexandria had left for her meeting, but

Shirley's cold, deliberate anger pinned him to the dining nook.

"She's holding on, just *barely* holding on. Can't you *see* that?" Her eyes flashed at him, their glitter punctuated by the high, arching black eyebrows.

"She wants to have a hand in this Brazilian thing."

"God damn it! She's frightened. I was gone — how long? five minutes? — and when I came back she was still sitting there in that gallery, white as a sheet and you patting her arm. That's not healthy, that's not the Alexandria we know."

Nigel nodded. "But I talked to her. She —"

"— is afraid to bring it up, to show how worried she is. She feels *guilty* about it, Nigel. That's a common reaction. The people I work with, they're guilty over being poor, or old, or sick. It's up to you and me to *force* them out of that. Make them see themselves as ...."

Her voice trickled away. "I'm not reaching you, am I?"

"No, no, you are."

"I think you ought to at least persuade her to stay home and rest."

"I will."

"When she's feeling better we'll take a trip," Shirley said quickly, consolidating her gains.

"Right. A trip." He stood up and began stacking plates, their ceramic edges scraping, the silverware clattering. "I'm afraid I haven't noticed. My work —"

"Yes, yes," Shirley said fiercely, "I know about your damned work."

He awoke in a swamp of wrinkled, sticky sheets. July's heat was trapped in the upper rooms of this old house, lying in wait for the night, clinging in the airless corners. He rolled slowly out of bed, so that Alexandria rocked peacefully in the slow swells of the water's motion. She made a foggy murmur deep in her throat and fell silent again.

The cold slap of night air startled him. The room was not close and stifling after all. The sweat that tingled, drying, had come from some inner fire, a vaguely remembered dream. He sucked in the cool, dry air and shivered.

He knew he wouldn't be able to sleep again. He padded into the high, arched living room and switched on a cone lamp. He fumbled through the encyclopedias for the entry on lupus erythematosus and then noticed a new book on the shelf. A Bible. Curious, he opened it. The pages were well thumbed. Shirley? No, Alexandria. He sat down and began reading.

* * *

VII

"The President does not *know* how long, Nigel," Lubkin said sternly. "He wants us all to hold on and try to find it."

"Does he think anybody can suppress news about something this big *forever*? It's been *five* months now. I don't think the Washington or U.N. people will keep quiet much longer."

Once more they were framed in the pool of light around Lubkin's desk. The one window in the far wall let in some sunlight, giving Lubkin's sallow skin a deeper cast of yellow. Nigel sat stiffly alert, lips pressed thin.

Lubkin casually leaned back in his chair and rocked for a moment. "You aren't hinting that you might ...?"

"No, rubbish. I won't spill it." He paused for a second remembering that Alexandria knew. She could be trusted, he was sure. In fact, she didn't seem to quite grasp the importance of the Snark, and never spontaneously spoke of it. "But the whole idea is stupid. Childish."

"You wouldn't feel that way if you had been with me at the White House, Nigel," Lubkin said.

"I wasn't invited."

"I know. I understand the President and NASA wanted to keep the number of attendees down. To avoid attracting notice from the press. And for security reasons."

The trip had been the high point of Lubkin's career, clearly, and Nigel suspected he burned to tell someone about it. But at JPL only Nigel and the director were privy to the information, and the director had been present at the White House, anyway. Nigel smiled to himself.

"The way the President put it was really convincing, Nigel. The emotional impact of such an event, coupled with the religious fervor afoot in the country, in fact the *world* ... those New Sons of God have a senator to speak for them now, you know. They would kick up quite a bit of dust."

"Which wing of the New Sons?"

"Wing? I don't know ...."

"They come in all colors and sizes, these days. The fever-eyed, sweaty-palmed ones can't count to twelve without taking off their shoes. If they have any. The intellectual New Sons, though, have a doctrine cobbled together about life existing everywhere and being part of the Immanent Host and that sort of thing. So my wife says. They —" Nigel stopped, aware that he'd begun to rattle on about a side issue. Lubkin had a definite talent for deflecting one from the point.

"Well," Lubkin said, "there

are also the military people. They're pretty nervous about this thing." Lubkin nodded unconsciously to himself, as though this last statement needed added weight.

"That's bloody *simple-minded*. No species from another star is going to come all this way to drop a bomb on us."

"*You* know that. *I* know that. But some of the generals are worried."

"Whatever the hell for?"

"The danger of triggering the Nuclear Warning Net, though that is reduced now that more participants know of the, ah, Snark. There is also biological contamination if this thing should enter the atmosphere...."

Lubkin's voice trailed off, and both men stared moodily for a long moment at a eucalyptus tree that dripped steadily from the light gray fog outside the window. The continuing alternation in the world weather cycle made these fall fogs more intense each year; the process was understood but beyond control.

Lubkin tapped his pen on his desk's polished sheen, and the ticking rhythm echoed hollowly in the still room. Nigel studied the man and tried to estimate how Lubkin was dealing with the politics of this situation. He probably saw it as a matter of containment, of separate spheres of activity. Lubkin would do what he could to keep Nigel toeing the line, keeping mum, and rummaging around the solar system after the Snark. Meanwhile, Lubkin could play the steely-eyed, competent, can-do type back at the U.N. To harried diplomats someone like Lubkin, with hard, sure answers, must seem like a good bet, a bright candidate for better things.

Nigel twisted his lips and wondered if he was becoming cynical. It was hard to tell.

"I still believe we have an obligation to tell the human race about this. The Snark isn't merely another strategic element," Nigel said.

"Well, I'm sorry you feel that way, Nigel."

There was no reply. Outside drops pattered silently in a moist, gray world, beading the pane.

"You *do* acknowledge the need for secrecy in this, don't you? I mean, despite your personal feelings, you *will* maintain security? I would —"

"Yes, yes, I'll go along," Nigel said testily.

"Good, very good. If you hadn't, I'm afraid I would have had to remove you from the group. The President was very firm about it. We, nothing personal, of —"

"Right. Your only concern is the Snark."

"Uh, yes. About that. There

was a little concern about attaching such an odd, mythical name to it. Might excite interest, you know, if anybody overheard. The U.N. chancellor's office suggested we give it a number, J-27. With twenty-six discovered Jovian moons, this is the next, you see —"

"Um." Nigel shrugged.

"— but of course, the main interest expressed by the chancellor lay in finding out where we can expect it next."

Nigel saw he could wait no longer. The card in his hand couldn't be turned into a trump, so he might as well reveal it. "I think I may already know," he said evenly.

"Oh?" Lubkin brightened and leaned forward gingerly.

"I guessed the Snark would follow a reasonably energy-saving orbit. No point in squandering. Given that, and the crude Doppler shift measurement we got of its fusion flame, I figured it for a long, sloping orbit in towards Mars."

"It's near Mars?" Lubkin stood up excitedly, his distant manner forgotten.

"Not any more."

"I don't —"

"I've been putting in a lot of hours on the Mars monitors. Used that blanket budget charge and had the camera and telescope rigs doing a piecemeal scan of the available sky around Mars. The program ran round the clock and I'd check the results each day. I got behind. Yesterday I found something."

"You should've told me."

"I *am* telling you."

"I'll have to call Washington and the U.N. at once. If the object is in orbit around Mars now —"

"It isn't." Nigel folded his arms, a faint sour taste in his mouth.

"I thought you —"

"The Snark was outward bound, away from Mars. I got two shots, spaced hours apart. The data was from seven days ago. I looked again today, when I finally read that week-old readout, but it's gone, out of resolving range."

Lubkin seemed dazed. "Already left," he said slowly.

"Even with only two points, the flight path is pretty clear. I think it must've done a gravitational rebound, looping in for a quick look and picking up momentum from the encounter."

Nigel was standing now, and he leisurely walked over to Lubkin's blackboard. He leaned against it, hands behind his back and resting on the chalk tray, elbows cocked out. He was glad for once to have Lubkin on the defensive, of sorts. Perhaps the Snark riddle could deflect the man from his fascination with generals and presidents.

Lubkin looked puzzled. "Where is, ah, J-27 going next?"

"I think ... Venus," Nigel said.

The ship knew, even before leaving the banded giant planet, that the next world inward was barren, a place where reddish dust stirred under the touch of cold, thin winds. Absence of a natural life system did not rule out inhabitants, however. The craft recalled several other such worlds, encountered in the distant past, which supported advanced cultures.

It elected to fly past the planet without orbiting. This would subtract more angular momentum during the gravitational "collision," readying the ship for the venture further inward.

This loomed all-important now, for the blue and white world demanded most of the craft's attention. Many overlapping radio signals chorused out from it, a babble of voices.

A debate ensued within the ship.

Matters of judgment were decided by vote between three equally able computers, until intelligent signals could be deciphered. Only a short while remained until a preliminary breakdown of the incoming transmissions was complete. Then, still higher elements of the craft would warm into life.

One of the computers held out for an immediate change of orbit, to skip the dry pink world and drive on, burning more fuel, toward the blue world.

Another felt that the bewildering torrent of radio voices, weak but all different, bespoke chaos on the third planet. Best to allow ample time for deciphering these confusing signals. The minimal energy course involved yet another flyby, looping by the second planet, the world which was shrouded in thick, creamy clouds. This path would trade time for fuel, a clever bargain.

The third computer wavered for a moment and then cast its lot with the second.

They hurried; the parched disk ahead swelled quickly. The craft swept by this world of drifting dust and icy poles, storing the collected data on tiny magnetic grains deep within itself; one more entry in a vast array of astronomical lore.

The craft damped the rumble of its fusion torch and began the long glide toward the wreathed second planet. Intricate steps began in the final revival of its full mental capacity. Electromagnetic ears cupped toward the blue world, catching whispers of many tongues. Understanding a single language without knowing any common referents would require immense labor. Indeed, the attempt might fail. The craft had failed before, in other systems, and been forced to leave in the face of hostility and misunderstanding. But perhaps here ....

The machines set to work eagerly.

He and Shirley sat on the hard-packed sand and watched Alexandria gingerly wade into the foaming white waves. She held her forearms up with each successive wash of cold water in a curious gesture, as though the lifting motion would pull her, loft her up and away from the chilling prick of the ocean. Her breasts swayed and jounced.

"It's good to see her getting in,"

Nigel said conversationally. He and Shirley had spent a good ten minutes coaxing Alexandria into activity and, each of them rather bemused by the sight of Alexandria's timid entrance, had sat down to watch it.

"It *is* cold," Shirley said. "You suppose there's some runoff from ...?" She waved a lazy finger at a blue-white mountain that peaked above the rippling surface of blue. The iceberg floated a few kilometers offshore, slightly south of Malibu.

"No, they ring it pretty tight. Float most of the fresh water in on top of the ocean water." A slight cooling wind stirred the sand around them. "That breeze might be coming over the berg, though," he added.

Alexandria was now bouncing in the scalloping waves. A spray of surf burst over her. She emerged, hair stringy and now a darker brown, shook her head, blinked, and resolutely dove into the deepening trough of the next wave. She breast-stroked out with sudden energy.

"This was a good idea, Shirley," he said. "She's responding to it."

"I knew she would. Getting her *away*, out of that deal with the Brazilians, it's the only thing that'll work."

"Is that what you learned during these nightly jaunts of yours?"

"Ah-*ha*," she said with a slowly drawn smile. "You're wondering where we go."

"Well, I did ...."

Nearby an old man, barrel chest supported by wiry tanned legs, pointed offshore. "Hey. Ya." he said.

Nigel followed the man's trembling index finger. Alexandria was floundering in the undertow. An arm appeared, grasping. She rolled in the soapy white. Her head jerked up, jaws agape to suck in more air. She paddled aimlessly, arms loose.

Nigel felt his heels digging into the gritty sand. From the dunes to the hissing water's edge was downhill, and he covered it in a few strides. He leaped high and ran through the first few breaking waves. He tumbled over the next wave, regained his feet and blinked back stinging salt.

He could not see Alexandria. A curving wall of water rose up, sucking at his feet. He dove into it.

As he surfaced something brushed his leg, soft and warm. He reached down into the frothing white suds and pulled up. Alexandria's leg poked out of the surf.

He set his feet solidly and heaved upward. She came up slowly, as though an immense

weight pinned her. He stumbled in the rip tide, blue currents rushing around his legs.

He got her face clear. Awkwardly he manhandled her body around until she was facing down. He swatted her on the back and a jet of water spurted from her throat.

She gasped. Choked. Breathed.

He and Shirley stood just inside the ring of strangers. Their blunt stares fixed on the young man who was talking to Alexandria calmly, filling out spaces in his clipboarded form. Afternoon sunlight bleached the scene, and Nigel turned away, his muscles jumping nervously from residual adrenalin.

Shirley looked at him with a mingled look of fear and relief. "She, she said there was a feeling of weakness that came over her," Shirley said. "She couldn't swim any more. A wave picked her up and slammed her into the bottom."

Nigel put an arm around her, nodding. His body felt jittery, urging him to action. He looked at the clotted gathering of beachgoers, abuzz with speculations, eyeing the two of them with unasked inquiry. A ring of naked primates. Far down the rectilinear beach a huge restaurant sign promised ERNIE'S SUDDEN SERVICE. Shirley huddled closer to him. Her hand clenched and relaxed, clenched and relaxed. Absurdly, he noticed that this gesture occurred scarcely centimeters from his penis. At the thought it swelled, thickened, swayed, throwing him into a confusion of emotions.

He hired a cab to drive them from Malibu to Pasadena. It was immensely expensive, but Alexandria's wan and drained expression told him the bus would be intolerable.

On the long drive Alexandria told the story over again and again. The wave. Choking on the salt water. Struggling at the bottom. The pressing, churning weight of water.

In the midst of the fifth telling she fell asleep, head sagging to the side. When they reached home she woke in a daze and allowed herself to be led upstairs. He and Shirley stripped and bathed her and then tucked her into the bed.

They made a meal and ate silently.

"After this, I ..." Shirley began. She put down her fork. "Nigel, you should know that she and I have been going to the New Sons in the evenings."

He looked at her, stunned. "Your ... jaunts?"

"She needs it. I'm beginning to think *I* need it."

"I think you need ...." But he let it fade away, the sharp edge left his voice. He reached across the table and touched the sheen of her cheek.

"God knows what we need. God knows," he said hollowly.

Doctor Hufman looked at him blankly. "Of course I can put her into the hospital for a longer time, but there is no need, I assure you, Mister Walmsley."

He reached out for one of the stubby African dolls grouped at the corner of his desk. Nigel said nothing for a moment, and the other man turned the doll over in his hands, studying it as though he had never seen it before. He wore a black suit that wrinkled under the arms.

"More time wouldn't help? A few more tests in hospital —"

"The complete battery is finished. True, we shall have to monitor these symptoms more frequently now, but there's nothing to be gained —"

"*Damn it*!" Nigel leaned over and swept the collection of dolls off the mahogany desk. "She doesn't *eat*. Barely makes it to and from work. She's, she's got no *zest*. And *you* tell me there's nothing for it —"

"Until the disease equilibrates, that is so."

"Suppose it *doesn't*?"

"We're giving her everything we can now. Hospitalization would only —"

Nigel waved him silent with a hand. Abruptly he heard the distant swishing of traffic on Thalia outside, as though suddenly the volume control had been turned up somewhere.

He stared at Hufman. The man was a technician, doing his job, not responsible for the reddening and swelling now attacking Alexandria. Nigel saw that, had never doubted that, but now in the compressed airless space of this office the facts smothered him, and he sought a way out. There had to be a release from the arrowing of events.

Hufman was gazing steadily at him. In the man's constricted face he read the truth: that Hufman had seen this reaction before, knew it as a stage in the process, something to be passed through as surely as the aches and spasms and clenching tremors. Knew that this, too, was one of the converging lines. Knew that there was no release.

VIII

Lubkin did not react well when Nigel requested an extended leave.

He appealed to Nigel's duty to the project, loyalty to the President (forgetting his British origins), to JPL. Nigel shook his head wearily. He needed time to be with Alexandria, he said. She wanted to

travel. And — casually, not quite looking into Lubkin's eyes — he was behind in his flight simulations. To maintain his astronaut status, he needed a solid week at NASA Ames, splicing it up so that he was never gone from Alexandria more than a few hours.

Lubkin agreed. Nigel promised to call in at least every two days. They were bringing in new men, Ichino and Williams, to supplement the survey program. If Nigel wanted to interview them now —

Nigel didn't.

The three of them went to the beach again, partly to exorcise the experience, partly because it was October and the crowds were gone. They lounged, they waded. The women were doing their meditations regularly now. They would face each other, draw the annular circle in the sand between them, link hands and go off into their own mesmerized world. Nigel closed his eyes, back pressed to the sand, and dreamed. Of Alexandria, of the past. When he was an astronaut.

They would drift his way at a party, lips pursed, seemingly inspecting Cezanne prints, and abruptly come upon him, round doe eyes widening in polite surprise at his mumbled identity (yes, he was the one), hand unconsciously going to the throat to caress a necklace or scarf, an oddly sensual gesture to be read if he cared.

Often, he did.

They were of many kinds, many types. (*How masculine,* one of them said, patting blue hair into place, *to think of women as types.* Embarrassed — this was in New York, where differences were unfashionable that year — he laughed and threw some Chablis at the back of his throat and left her soon thereafter, reasoning that, after all, he did not quite like her type.) He sampled them: the Junoesque; the wiry and intense; the darkly almond sensual; the Rubens maiden; the others. How not to call them types? The urge to classify washed over him, to analyze and inspect. At last he came to look upon himself as from a distance, pacing his responses, never moving wholly with the moment. There, he quit. The NASA flak man who hovered everpresent at his elbow tried to keep him "alive" on the 3D, circling through the talk shows, to retain his "saturated image," but Nigel dropped out. And, after a while, found Alexandria.

He went for long runs on the beach between La Jolla and Del Mar, keeping in training, churning doggedly by forests of firm young thighs, sun shimmering through a thin haze of sweat that ran into his eyes from bushy eyebrows. Cantilevered breasts — or, more stylishly, bare ones, brown-painted nip-

ples pouting in the stinging sun — swung to follow his progress. He loped along the ocean's foaming margin, feet slapping in water, arms and legs growing leaden, his throat awash in dry pinpricks. He diverted himself by studying the faces that wheeled by, moving stride by stride into his past. Small families, leathery men, dogs and children: he picked roles for them all, ran small plays in his head. He glimpsed them frozen in laughter, boredom, lazy sleep.

One of them had stared straight at him, seen in an instant what his mind's eye was up to, and given him a crooked insane grin, eyes crossed. He slowed, stopped. Tried to read the deliciously red lips. Came closer. And met Alexandria.

"Nigel. Wake *up*. Nigel!"

Shirley loomed over him, blotting out the sun. "We've got to go. She's feeling nauseous again."

He sat up. Alexandria smiled wanly a few meters away, eyes hollowed and dark, a shadow of the woman he had conjured up a moment before. He wrenched his eyes away.

"Right, I see that. What I can't make out is why *I* must have a telltale installed." Nigel leaned forward, shoulders hunched, elbows on Hufman's desk. Alexandria sat silent, hands folded. Hufman grimaced and started over:

"Because I can't rely on Alexandria carrying her pickup monitor everywhere. Her telltale is much more complex than yours — it taps directly into the nervous system — but its radio transmitter hasn't got enough range. If she got beyond her pickup, she could have a brain stem hemorrhage, go into coma, and you'd think she was just dozing. But with a pickup telltale inset behind your ear, you'd know something was wrong, even if she'd left her monitor behind."

"And fetch you."

"An emergency team, not me." Hufman sighed, looking frayed and tired. "If you two are going to travel or even go on long walks, the telltales are necessary."

"It won't screw up my inner ear or my balance, anything like that? NASA has to approve any —"

"I know, Mr. Walmsley. They'll authorize it; I checked."

"Nigel, yours is only an —" Alexandria glanced at Hufman.

"Acoustic transducer," Hufman supplied.

"Yes. Mine is a complete diagnostic communicator. We'll both be tagged with the same transmission code, but yours will be, well, just a warning light for mine. You —"

"I know, right," Nigel said, jerking to his feet. He paced nervously. "You say mine can come right back out, just pop the cork

and I'm good as new?"

"Painless." Hufman regarded him steadily. "We'll be able to interrogate Alexandria's diagnostics, or check yours to see if it's receiving properly, without touching either of you."

Nigel blinked rapidly, jittery. He hated operations of any kind, could barely tolerate the NASA physicals. But what upset him here was the calm, assured way Hufman and Alexandria talked about the possibility of massive damage to her nervous system. Of a wasting disease, a slow seeping away of function. Then the hemorrhage. Then —

"Of course. Of course I'll do it. Now that I understand. Of course."

They still attended parties in the homes of friends, or visited Shirley's cramped apartment in Alta Dena, but Alexandria found her tolerance for alcohol weakened. She tired early and asked to be taken home.

Her work schedule slipped from three days a week, to two, then one. The Brazilian deal went on, gathering legal complexity, like a ball of wool picking up lint. She fell behind and was given more and more circumscribed tasks to complete.

Nigel resisted Shirley's persuasions to attend New Sons ... meetings? rallies? services? He could not tell whether Shirley went because of Alexandria, or the other way around. Alexandria, knowing him, scarcely mentioned it.

He rose in the early morning and read the New Sons books, the *New Revelations,* the intellectual superstructure. It seemed a tinkertoy religion to him, assembled from the detachable sprockets and gears of earlier faiths. Through the center of it ran the turbine he'd suspected: a parody of the Old Testament God, obsessed with the power of His own name, capable of minute bookkeeping in the lives of the devout, to decide their salvation. This God carried the whole suitcase full of wars, disease, floods, earthquakes and agonizing death to visit upon the unconvinced. And, apparently, believed in preposterous connections between Buddha, Christ, John Smith and Albert Einstein; indeed, had caused them all, with a tweak of the holy hand.

Nigel slammed the *New Revelations* shut on this mean-minded God, rose and padded quietly into the bedroom. Alexandria lay sleeping, head tilted back and mouth open.

He had never seen her sleep this way before. The thrust of her body seemed to belie the fact of rest. Tense yet vulnerable. He had a sudden perception of death: a small thing moving in from the distance,

winging slowly in the night air as she slept. Searching out the house. Through a window. Into the shadowed bedroom. Silent, slow. Fluttering. Fluttering into her sagging mouth.

IX

Lubkin called frequently. Nigel listened but volunteered little; nothing more had been learned about the Snark, and so there seemed no purpose in speculating. Lubkin was all a-tremble over the President's appointment of an executive committee, headed by a man named Evers, to monitor the situation. ExComm, Lubkin called it. The committee was meeting at JPL in a week; would Nigel come?

He did, begrudgingly. Evers proved to be a deeply tanned, athletic-looking sort, well groomed and noncommittal. He carried the air of one who had been in charge of things for so long that his leadership was assumed, a fact hardly worth remarking upon. Evers took Nigel aside before the formal meeting and pumped him for an estimate of what the Snark was up to, where it would go. Nigel had his own ideas, but he told Evers that he hadn't a clue.

The meeting itself proved to be a lot of talk with precious little new data. The Venus rendezvous seemed quite probable now, after detailed analysis of the Mars encounter. Why the Snark should be doing this was another matter. Since the communications satellite nets were completed in the 1990s, Earth was no longer a strong radio or TV emitter. A magnetic implosion-induced rainbow artfully produced in Saudi Arabia was transmitted to Japan by direct beaming through a satellite; no signals leaked out of the atmosphere any more. It was conceivable that the Snark hadn't picked up intelligible electromagnetic signals from Earth until it was near Mars. But still, why Venus? Why go there?

Nigel felt a certain wry amusement at Evers and his scientific advisors. When pressed on a point, they would hedge and slip into their neutral jargon; a simple "I think" became "it is suggested that;" opinions were given in the passive voice, devoid of direct authorship.

It came to him as the meeting broke up that, compared to this slippery committee and the unreadable Evers, he probably preferred the riddle now riding toward Venus, a thing known only by its blossoming orange fusion flame.

Lubkin called. The Snark did not respond to a beamed radio signal or to a laser pulse.

Of course not, Nigel thought to himself. The thing isn't naive any

more. It's had a squint or two at daytime 3D and grown cautious. It wants time to study us before putting a toe in the water.

More news: Evers was upping the budget. New specialists were being called in, though none was given the whole picture, none knew what all this was really about. The Ichino fellow was working out well. Tracking went on. No sign of the Snark.

Nigel nodded, murmured something, and went back to Alexandria.

X

Alexandria insisted they go to the Lubkin's Christmas party. Shirley was ambivalent; she found the JPL crowd boring. But Alexandria was more lively now and she prevailed. Hufman said she might have reached a leveling-off. Perhaps the drugs were working. The disease might go no further.

As if on cue, Alexandria improved suddenly. She bought a dress that artfully exposed her left breast and found a shirt for Nigel with ruffled black-and-tan sleeves. Nigel felt conspicuous in it when they arrived at the Lubkins'. Alexandria was her old self; she took up a corner position in the living room, and guests, mostly JPL-related, gradually accumulated around her. He prowled Lubkin's home, staring out at the evening fog that seeped uphill toward them through a stand of jacaranda trees.

"Say, Nigel, I thought you'd like to know Mr. Ichino."

Nigel turned woodenly. Lubkin's introduction had come unexpectedly and Nigel was not prepared for the short, intense man who held out a hand.

"Ah, yes" — they shook hands — "I gather you're to look into the telemetery and computer hookups to Houston."

"Yes, I shall," Ichino said. "I have been overseeing the general aspects of the problem so far. I must say your programming for the Snark search pattern was admirable."

At this last sentence Lubkin stiffened.

"I am sorry," Ichino said quickly. "I shall not mention such terms again in public."

Lubkin's face, drawn and strained, relaxed slightly. He nodded, looked at the two men indecisively for a moment, and then murmured something about looking after the drinks and was gone. Ichino compressed his lips to hide a smile. A glance passed between him and Nigel. For an instant there was total communication.

Nigel snickered. "Art has been defined —" he sipped at his wine — "as adroitly working within limitations."

"Then we are artists," Mr. Ichino said.

"Only not by choice."

"Correct." Mr. Ichino beamed.

"Have you picked up the, ah, object yet?"

"Picked up ...:" Mr. Ichino's walnut-brown forehead wrinkled into a frown. "How could we?"

"Radar. Use Arecibo and the big Goldstone net together."

"This will work?"

"I calculate that it will."

"But everyone knows we cannot follow deepspace probes with radar."

"Because they're too small. Admittedly we've never seen the, the thing. So we don't know its size. But I used the apparent luminosity of its fusion flame and estimated what mass that exhaust was pushing around."

"It is large?"

"Very. Couldn't be smaller than a click or two on a side."

"Two kilometers? Using Arecibo we could easily —"

"Precisely."

"You have told Dr. Lubkin of this?"

"No. I rather thought somebody would've looked into it by now."

From the look on Mr. Ichino's face, Nigel could see quite clearly that the usual Lubkin style was still in force; Lubkin was doing what he was told. Innovation be damned, and full speed ahead.

Ichino was partway through a delicately phrased recital of what was happening in the Snark search — apparently, damned little — when more wine arrived. Nigel allowed an ample quantity to slosh into his glass and gestured expansively: "Let's move round a bit, shall we?"

Ichino followed quietly, ice tinkling in his watery drink. Nigel ducked down a hallway, nudged open a door that was ajar. The family rec room. He peered around at the usual furniture netting, console desk and sim-sensors.

"Big screen, isn't it?" He crossed over to the pearly blank 3D. He thumbed it on.

— A man in an orange and black uniform, holding a long bloody sword, was disembowling a young girl —

— The thing in silvered dorsal fins made an explicit gesture, grinning, eyes fixed. Male? Female? Ambig? It murmured warmly, twisting —

"Bit juicy, looks like," Nigel said, switching away.

"Perhaps we should not be witnessing his private channel selections ..." Mr. Ichino said.

"True enough," Nigel said. He flipped over to full public circuits. "Haven't seen one this big in quite a while."

— The oiled bodies snaked in

long lines. They formed the sacred annular circles under the glare of spots, off-camera, which did not wash out the log fire that blazed angrily at the center, sparks showering upward. Feet pounded the worn earth. A hollow gong carried the beat. Spin. Whirl. Stamp. Sing.

"Even worse than before," Mr. Ichino said mildly. He reached out to the dial. Nigel stopped him: "No."

— Chanting, spinning in a dizzy rhythm, the bodies glistened with sweat. Their ragged chorus swelled into new strength.

Running living leaping soaring
Brimming loving flying dying
Only once and all together
Joyful singing love forever

Annular circles orbited about the central fire. Spin. Whirl. Stamp. Sing.

"Overall," Nigel drawled, "I think I would prefer opium as the religion of the masses."

"But you error there, sir," a voice said from the doorway. A rolypoly man stood there with Alexandria. His eyes glimmered out from folds of flesh, and he laughed deeply.

"Bread and circuses we *need*. We cannot provide infinite bread. So —" He spread his hands expansively. "Infinite circuses."

Introductions: he was Jacques Fresnel, French, completing two years of study in the United States. ("Or what's left of it," Nigel added. Fresnel nodded uncertainly.) His subject was the New Sons. Alexandria had struck up a conversation with him and, sensing an interesting confrontation, led him to Nigel. (And Nigel, despite the fact that the New Sons were not a favorite topic, felt a surge of happiness at this sign of her new liveliness. She was enjoying things again, and mixing better than he was at this party.)

"They are, you see, sir, the social cement," Fresnel said. He held his glass between two massive hands as though he would crush it. "They are *ne*cessary."

"To glue together the foundations," Nigel said blandly.

"Correct, correct. They have only this week unified with numerous new Protestant faiths."

"Those weren't faiths. They were administrative structures with no parishioners left."

"Socially, unification is paramount. A new *bind*ing," Fresnel said.

"Nigel," Alexandria said, "he thinks they are a hopeful sign."

"Of what?"

"The death of our Late Sensate culture," Fresnel said earnestly.

"Passing into — what? — fanaticism?"

"No, no." He waved the idea away. "Our declining Sensate art is

al*ready* being swept aside. No more emptiness and excesses. We shall turn to Harmonious-Ascendant-Ascetic."

"No more Nazis gutting blondes for a thrill on the 3D?"

Alexandria frowned and glanced at Lubkin's pearly 3D, now blank.

"Certainly not. We shall have mythic themes, intuitive art, work of sublime underlying intent. I do not need to stress that these are the feelings we all sorely lack, both in Europe and here and in Asia."

Alexandria said, "Why does that come next, after Sensate?"

"Well, these are modified views, taken from the strictly schematic outline of Sorokin. We could pass into a Heroic-Promethean, of course —" he paused, beaming around at them — "but does any of us expect that? No one feels Promethean these days, even in your country."

"We are building the second cylinder city," Mr. Ichino said. "Surely construction of another world —"

"A fluctuation," Fresnel said jovially. He touched a fingertip to his vest. "*I* am always in favor of such adventures. But how many can go to the, the cylcits?"

"If we build them fast enough with raw materials from the moon —" Alexandria began.

"Not enough, not enough," Fresnel said. "There will always be such things, and they are good, but the main drift is clear. The last few decades, the horrors — what have we learned? There will always be dissenters, schismatics, deviants, holdovers, dropouts, undergrounds, heretics even, and of course the reluctant or nominal conformers."

"They are the majority," Mr. Ichino said.

"Yes! The majority! So, to do anything useful with them, to channel and funnel that stupendous energy, we, we must place — how is it said? — all these under one roof." Fresnel made a steeple of his hands, his stone rings like gargoyles.

"The New Sons," Nigel said.

"A true cultural innovation," Fresnel said. "Very American. Like your Mormons, they add whatever elements are missing from traditional religions."

"Stir, season to taste, and serve," Nigel said.

"You're not truly giving it a chance, Nigel," Alexandria said with sudden earnestness.

"Bloody right. Anyone for drinks?" He took Alexandria's glass and made off toward the bar. The carpet seemed made of spongy stuff that lifted him slightly into the air after each step. He navigated through knots of JPL people, flashing an occasional automatic

smile and brushing away from contact with others. At the bar he switched to an anonymous Bordeaux.

When he returned, a small knot of people had formed around Fresnel, discussing Humanistic-Secular. The prime point in question seemed to be the use of electronically enhanced gloves by the pope, and whether this meant he would throw in with the New Sons. Media said the two were jockeying about over the issue; a computer-human linkup had predicted absorption of the catholics within three years, based on assignable sociometric parameters.

Nigel beckoned to Alexandria and they drifted away. Shirley appeared, arriving late. She kissed Alexandria and asked Nigel to fetch her a drink. When he returned, Alexandria was talking to some Soviets and Shirley drew him aside.

"Are you going with us?"

"Where?"

"The Immanence. We do so want you to go with us to see him, Nigel."

He studied her eyes, set deep above the high cheekbones, to read how serious she was. "Alexandria has mentioned it."

"I know. She said she's making no progress. You just clam up about it."

"Don't see much point in talking nonsense."

"You apparently don't like talking to us at *all*," she said with sudden fire.

"What's that mean?" he asked, bristling.

"Ohh." She slammed her fist against the wall in dramatic emphasis. She rolled her eyes and Nigel couldn't stop himself smiling at the gesture. *She should have been an actress*, he thought.

"Nigel, dammit, you are not *flexing* with this."

"Don't follow the slang, sorry."

"*Ohh*." Again the rolling eyes. "You and your language fetishes. Okay, in one syllable. Alexandria and I don't know where you *are* any more — emotionally, I mean. You keep working on this thing, whatever it is, at JPL. Reading your damned astronomy books. Alexandria needs more of you now —"

"She's getting plenty," Nigel said a bit stiffly.

"You're closed off in there, Nigel. I mean, *some* gets through, but ...." Shirley knitted her eyebrows in concentration. "It never struck me before, but I think that might be why you fit into a triad. Most men can't, but you ..."

"I'd imagine a triad requires *more* communication, not less."

"Of a kind, I suppose, yes. But Alexandria is the center. We orbit around her. We don't have a true three-way."

She leaned against the padded hallway wall, shoulders slumped forward, studying the carpet. Her left breast, exposed, teardropped in the soft shadows, its tip a brown splotch. Nigel suddenly saw her as more open, more vulnerable than she had seemed in months. Her pastel dress bunched at hips and breasts and somehow made her appear nude. The oval over her left breast hung as an eye into a deeper layer of her.

He sighed. He was aware of the breath leaving him as a thick alcoholic vapor, a liter of stuff so substantial he half expected to see the cloud hang in the hallway, unmixed with the customary air. "Maybe you're right," he said. "I'll think about it."

Shirley nodded silently. He kissed her with an odd gravity. Three people, chattering, came out of a nearby room and the mood between them was broken.

It was a good party, quite good. Lubkin's affairs in the past had been straightaway the most boring of a sad lot of parties that sprouted up around the moribund jollity of the Xmas season. *Keep the X in Xmas*, he thought, making another round to the bar. The Bordeaux was finished off but a passable California claret went down nicely. Nigel realized dimly that he was pretty well into a substantial piss-up. Better yet, all at Lubkin's expense. He had half a mind to search out Lubkin and thank him profusely, meantime sloshing down a gratifyingly large quantity directly in his presence.

He set out on this mission and found himself negotiating a surprisingly difficult corner getting out of the rumpus room. (Did Lubkin allow an occasional rumpus in the rumpus room? Just a sweet beheading or two, in full color, Chinese cleavers and all? No, no; the disorderly nature of the cleaning-up would offend the man.) The angle of the corner was obtuse, opaque. He had noticed the floor plan was pentagonal, with occasional jutting intrusions, but how was he to get his bearings?

He sat down to clear his head. People drifted by as if under glass.

He pondered the opaque angle. Oddities of the language: *angle*, with two letters interchanged, spelled *angel*. Easy, so easy. One transposition rendered the comfortably Euclidean into — pop — the orthodoxly religious. Two letters alone could leap that vast, abiding chasm. Absurdly easy.

Up again, and off. In the living room he sighted land, in the persons of Shirley and Alexandria. They were foci for the usual knot of JPL engineers, men with close-cropped hair and cheap ballpoint pens still clipped in their shirt

pockets, smiling wanly as he approached, looking as though they had just been shaken awake.

Nigel skimmed past these constellations on a flyby, then ricocheted from conversation to conversation in the hollow living room:

— SoCal lost its appeal to the regional EIB?

— Sure. I expected it.

— So our water quote's cut again?

— Sure. Factors into a 1800-person popdrop, mandatory. We'll make it up from fractional decline. Slowed immigration laws will come through. And the Federal Regional Support Allotments will be shaved. We —

Onward:

— Suppose we've got the terrorists stopped on Plutonium 240? So what? Since the New Delhi incident, we know the damned Asians can't be trusted to —

Onward:

— And I loved that scene with the semen all *over* the stage, just frozen CO2 really but what an *effect*, jizzing into the *au*dience —

Here and there Nigel began talking. He unzipped the floppy covers from words, made them pop out quick and shiny. People peered at him as though from a height. Words smerged together.

Nigel: You pronounce 'clothes' as though it were 'close.'

Woman: Well, aren't they the same?

Nigel: How about 'morning' and 'mourning'?

And then away, to the bar, where some decent hock burbled out into his unlifted glimmering glass. He sipped. A Riesling? Too sweet. Gewurztraminer? Possibly.

The room was unsuitably warm. He moved through the heavy, cloying air. Crescents of sweat had blossomed under his armpits. He made for the rec room.

Vacant. The 3D. He thumbed it on. The screen melted into an overview of the two annular circles. Bodies laced together. A voice boomed out over the crowd. Bread and wine. Come to fullness.

No communion rail and wafer, not here. No baptismal dunking, no empty Jewish phrases muttering about a Pharaoh in a tongue they can't understand. No ritual. The *real* religion, straight from the wellsprings. Only once and all together. Joyful singing love forever. Sic transit, Gloria.

He punched at the button. Family Music Center, it said.

Good, right. Try for a bit of Eine Kleine Krockedmusik. Jazz: King Oliver. Brassy trumpet, drums. But where was the Bach? Or did he have to settle for some modern cacophonist? He turned back to the 3D. The writhing New Sons, again. Make a joyful noise

unto the horde. He punched at the buttons.

The black swastika vibrated against the orange uniform. The gleaming tip of sword bit into the girl's stomach. She begged, crying. The man shoved upward and the sword sank deep. Blood spattered from her. She lunged against the cords binding her hands, but this only made the sword slice crosswise. She screamed. Crimson laced down her legs.

Nigel wrenched it off. He was sweating; it ran into his eyes. He wiped his brow and wheeled away. He paused in the hallway to steady himself. Malt does more than Milton can, to justify God's ways to man. Welcome to the 21st Century.

He made his way to the patio. Cool air washed over him. The fog below had layered above the jarcaranda trees, haloing the lights of Pasadena. Nigel stood, breathing deeply, watching the gathering mist.

"Mr. Walmsley? I wanted to continue our discussion."

Fresnel advanced from the opened slideway, framed by the murmuring party beyond.

The frog comes in on little flat feet, Nigel thought. He tossed his wine glass away and turned to meet the man.

"There is a point about econometrics—"

Nigel watched his fist blossom in midair and home with elliptical accuracy on Fresnel's forehead. There was a fleshy smack. Fresnel staggered but did not fall. Nigel set himself and estimated the geometry of the situation with a precise eye. Fresnel was wobbling, a difficult target. The man's face beaded with perspiration in the silvery light. Nigel launched his left fist along an ascending parabola. Angle into angel. There was a jolting impact. Flesh colliding, wetly. His hand went numb. Fresnel melted away. Nigel tottered and then relaxed. He watched the fog layer tilt over in the air. It seemed to take a long time.

XI

His Immanence resided in a recently purchased Baptist church. The building squatted on a scruffy, Midwestern-looking street corner among the flatlands of lower Los Angeles. Nigel squinted at it skeptically and slowed his walk, but Alexandria and Shirley, on either side of him, tugged him on.

They'd never have gotten him here but for a moment of contrition over Fresnel. Scarcely anyone at the party'd noticed except Alexandria, who glimpsed Nigel tipping over. Fresnel had been insulted but surprisingly, unhurt; the women had been shocked; Nigel had rather enjoyed the whole bash and still relished the memory of Fresnel going down, ass over entrails.

He braced himself for the ordeal to come. They entered through a side door and passed through a large auditorium packed with saffron-robed figures being lectured. Shaved heads, bright garlands of flowers. The salty tang of Japanese food. Through a clicking beaded curtain, out the back door, around the temple. They entered a small garden through a bamboo gate, noisily slipping the latch.

A small, browned man sat in Lotus position on a broad swath of green. A breeze bestirred the trees overhead. The man regarded him with quick, assessing yellow eyes. He gestured for the three of them to sit and Alexandria produced three round yellow pads for them. Nigel sat in the center.

They exchanged pleasantries. This was a wing of the New Sons, those who felt in tune with the eastern roots of man's religious heritage. The man with a face of sagging flesh was an Immanence, for there was no one sole Immanence, just as a universal God had an infinite store of representations.

Nigel explained, with long uncomfortable pauses, his own rational skepticism about religion. Most men sought some undefinable something, and Nigel admitted he did too, but the grotesque distortions of the New Sons —

The Immanence plucked a leaf from a bush and held it to Nigel's eyes. He blinked and then stared at it steadily.

— You are a scientist. Why would anyone spend his life studying this leaf? Where was the gain?

— Any form of knowledge has a chance of resonating with other kinds, Nigel replied.

— So?

— Suppose the universe is a parable, Nigel said uncertainly. By studying part of it we can read the whole.

— The universe within a grain of sand.

— Something like that. I feel the laws of science and the way the world is put together can't be accidents.

The Immanence pondered a moment.

— No, they are not accidents. But except for their practical use, they were always unimportant. The physical laws are but the bars of a cage.

— Not if you understand them.

— The central point is not to study the bars. It is to get out of the cage.

— I think the act of reaching out is everything.

— If you would come to fullness, you must stop reaching and manifest a more basic spirit.

— By dancing in two circles?

— Another facet of the Many Ways. Not ours, but a Way.

— I have my own way.

— This world can best be understood as an insane asylum. Not an asylum for the mind, no. For the *soul.* Only the flawed remain here. Are still here.

— I have my reaching out to do here. Out between the bloody bars, if that's the way —

— That is nothing. You must try to escape and transcend the cage.

Nigel began to speak rapidly and the old man waved away his points.

— No, he said. That is nothing. Nothing.

Rubbish, Nigel thought. *Utter rubbish, what that dried prune of a man had said.*

So thinking, he dipped a wing. The airfoil caught and he felt a tug, pressure. Up he went, the momentary image of that dreadful Immanence bloke fading as quickly as it had come (*odd, to think of it here, now*) and wind sang through the struts.

"How is it, Nigel?" Alexandria's voice came in his ears.

"Incredible," he said into his throat mike. He peered down at the spinning earth — which the instructor had warned him against, but what in hell was the point, really, if you couldn't do that? — and saw her, an orange speck.

"Can you hold the spiral?" she called.

"Bit tough on the arms," he grunted.

"The instructor says to relax into the harness."

"Right. I'm trying. Oops —" He lurched. The glider bit into a surge of wind and climbed sharply. The invisible funnel of air, warm as it swept in from the Pacific, lofted him further up his lazy spiral. The wind rose like a transparent fountain here on the coast, where breezes moving landward struck first the steep hills and then the westward wall of Arcosoleri, the kimometer-high city of cubes and apses. Nigel glanced at the glittering windows of the Arc as he swooped nearest it, judging the distance. He still had a safe margin away from the pinkish concrete face. The circling tunnel of air held him in check.

Below, the turning world. Purple-ripe clouds mottled the arc of the sea's horizon, showers of rain like skirts beneath them. And here, Nigel, banking and rising and at once feeling a sensation like a *swoosh* of breath leaving him as his spirit lifted free of this spiraling body and joined the air. He shook himself. It was as though he had stopped struggling, stopped trying to swim through mud. The scooping wind moaned at the slit in his face mask and he tilted his

wings to rise higher, Icarus reborn as he left behind everything below him. It was all in the past now, he hoped — Alexandria was recovering, the Snark was on its way. A pure blind joy possessed him. The unacknowledged fear that had gripped him at the beginning of the flight now fell away like a weight, and he felt smooth and sleek, birdlike, darting in these high winds. Corkscrewing up, up from the enveloping earth. Soundless happiness. Mortality seeped out of him, froze in the chill high air and fell to shatter with a crystal tinkling on the California below. He turned in a slow circle, carving earth's skin of air, glinting ocean waves below waving at him randomly. A wing foil flapped, then straightened. Icarus. Wax wings. Do not go softly into this good sky. Soaring. The spinning earth a basket below. The twin dots of Shirley and Alexandria like pins on a map

coins in his lap

Yes.

He lofted free.

XII

He and Alexandria lifted three days later. They had booked well in advance to get a flight over the poles; they re-entered the atmosphere as a flaring pink line scratched across the sky of the north Atlantic.

Matters were a bit better in England than during their last visit several years before. There were only a few shambling beggars at the baggage checkout, and they even seemed to have valid licenses. Most of the terminal was lighted, though not heated. Their helicopter to the southlands lifted. Coal smoke blotted out the London sprawl.

They reached their destination easily: a well-preserved English inn about 350 years old, well run and securely guarded. They spent Christmas there, snug in the battering winds. The next day they hired a guard and a limousine and visited Stonehenge.

Nigel found the experience oddly moving. In spirit, he'd become scarcely an Englishman at all, after the welfare state had turned into the farewell state. These massive thrusting columns, though, spoke to him of a different England. The heel stone was so marvelously aligned, the celestial computer so accurate, he felt a kinship with the men who had made it. They had thrust these gray measuring fingers at a clockwork sky, to understand it. The New Sons had long since played up the pantheistic side of the Druids, never mentioning the rest — that these were not men who followed others' ideas senselessly.

Nigel looked out at the road where a gang of altered chimps was

repairing wash damage. They cradled their special shovels and flicked mud thirty meters in one toss. Alexandria stood beside him, biting absently at a fingernail: evolutionary remnant of animal claws. He shivered and took her back to the inn.

Paris was depressing. The second day of freezing in a darkened hotel ended with shutdown of water pressure throughout the city for the rest of the week.

The pleasure domes of the Saudis were thronged. Cloud sculptors flitted over the desert, carving erotic white giants that coiled ponderously into vast orgasms.

Over South Africa the display was more modest. At evening the swollen elders appeared, wrinkled financial barons, and enjoyed an orchestrated weatherscape as they dined. Nigel and Alexandria watched a vibrating rainbow that framed purple thunderheads, clouds moving with the stately grace of Victorian royalty.

In Brazil, in a restaurant, Alexandria pointed: "Look. That's one of the men we're negotiating with for the airline."

"Which one?"

"The stocky man. Tiltlens glasses. A sway shirt. The briefcut jacket with highlighted trim. Khaki —"

"Right, I see."

She looked back at Nigel. "Why are you smiling?"

"I've missed that eye for clothes you have. I never see those things, really." He reached out to take her hand. "I've got you back again."

A lot of the planet they couldn't see. In the large areas without resources or industry a white man was an automatic enemy, a child-starver, a thief; the politics of the past thirty years had seen to that. On Ceylon they went a block from the hotel to eat. Partway through their curry the muttering in the restaurant and a gathering tension drove them into the stinking street. A passing cab took them back, and then to the airport, and then to Australia.

They were baking on Polynesian sands when his pager buzzed. It was Lubkin. Ichino had relayed the radar search idea to him. They had a blip. It was bigger than two clicks, and spinning. It would rendezvous with Venus inside eleven days if it didn't accelerate. Lubkin asked if Nigel would return early to run the main bay team. Nigel told him he would think about it.

Outside Kyoto, walking a country lane, Alexandria suddenly threw up into a ditch. A two-day biopsy showed no change in her condition from three months before. Her organic systems seemed stable.

Her pocket telltale hadn't made a sound. Nigel checked his skull set. It was active. It beeped on command. Alexandria simply hadn't been ill enough to trigger it.

The next day she felt better. The day after that, she was eating well. They went on a hike. As she slept afterward, Nigel called ahead and canceled the rest of their reservations. He fluxed through to Hufman; the man's face showed on the screen as a wobbling mask. Hufman thought Alexandria needed a rest near home.

They took the next jet to California, arcing high over the pale Pacific.

XIII

The main bay: a crescent of consoles, each sprinkled with input boards like a prickly frosting. Men sitting in roller chairs were stationed at each console, watching the green/yellow screens flicker with a blur of information. The bay was sealed; only staff members directly involved in the J-27 project were present.

"Arecibo has acquisition," Nigel said.

The knot of men around his chair buzzed with exclamations. Nigel listened to his headphones. "They say the Doppler confirms a flyby orbit."

"You check with Arecibo?" Evers said at Nigel's elbow.

Nigel shook his head. "Our satellite, Venus Monitor, can't get a radar fix. This is all we have." He tapped in programming instructions on his keyboard.

"Spectrographic reading," Lubkin explained. A telemetered photo was being drawn on the screen line by line. At the top edge of the screen was a tiny point of light, scarcely more than a few bright dots on the picture tube.

"Spectral intensity shows it's hot. Must be a pretty fiendish fusion torch." Nigel looked up at the men from NASA, Defense and the U.N. Most of them clearly couldn't make sense of the wavelength plot being displayed; they scowled in the fluorescent glow of the main bay, looking out of place in their stylish green suits.

"If it *is* on a flyby course, it will almost certainly come here next," Evers said to the other men.

"Possibly," Nigel said.

"It may attempt to land, bring unknown diseases with it," Evers went on smoothly. "The military will have to be able to stop such an eventuality."

"How?" Nigel said, ingoring a

raised finger from Lubkin that plainly told him to remain silent.

"Well, ah, perhaps a warning shot." Evers' expression pinched slightly. "Yes," he said more brusquely, looking at Nigel. "I'm afraid we will have to determine that for ourselves."

The group broke into conversation. Lubkin tapped Evers' arm. "I think we should try to signal again."

Evers nodded. "Yes, there is that. The ExComm will work out the message. We have some hours left to discuss it, don't we?" He turned to Nigel.

"Three or four at least," Nigel said. "The men need a break. We've been at it over ten hours."

"Good. Gentlemen," he said in a booming voice, "this area is not secure for further discussions. I suggest we retire upstairs." The group began moving off under Evers' direction. Lubkin beckoned Nigel to follow.

"I'll stay here for a bit. Set up the watch schedule. And I want to go home to rest. I'm not going to be needed in your deliberations."

"Well, Nigel, we could use your knowledge of ...." Lubkin hesitated. "Ah, maybe you're right. See you later." He hurried to catch up to the group.

Nigel smiled. Lubkin clearly didn't relish the prospect of a cantankerous Nigel in the ExComm meeting. Feisty subordinates do not reflect well on their superiors.

He took a JPL scooter home. The tires howled on the corners as he banked and shifted down the hillside avenues, slicing through the dry evening air. Stars glimmered dimly behind a layer of industrial haze. He piloted without goggles or helmet, wanting to feel the rush of wind. He knew handling the Snark-Venus encounter would be tricky, particularly if Evers and Lubkin and their faceless committee designed some transmission. Nigel would then have to sandwich his own in somehow before the committee caught on. He had been working for months on the code; he'd read all the old literature on radio contact with extraterrestrial civilizations and adapted some of their ideas. The transmission had to be simple but clearly a deliberate signal to the Snark. Otherwise the Snark would probably assume it had picked up another conventional Earthside station and ignore it.

Or would it? Why did Snark remain mute? Couldn't it easily pick up Earth's local stations?

Nigel gunned the scooter, swooping down the hills. He felt a rising zest. He'd check on Alexandria, who would be home from work soon, then wait for Shirley to arrive and keep Alexandria company while he was

gone. Then back to JPL and Venus and the Snark —

He coasted into the driveway, kicked back the stand and bounded to the front door. The lock snapped over and he ran up the winding staircase. At the landing he stopped to fit his key into the apartment lock and was surprised to find his ears ringing. Too much excitement. Maybe he really would need to rest; the Venus encounter would last through until morning at least.

He let himself in. The living room lights glowed a soft white.

Now only one of his ears was ringing. He was more tired than he thought.

He walked through the living room and into the arched intersection of kitchen and dining nook. His steps rang on the brown Mexican titles, the beamed arch echoing them. The ringing in his head pitched higher. He cupped his hands to an ear.

A woman's shoe lay on the tiles.

One shoe. It was directly under the bedroom arch.

Nigel stepped forward. The ringing pierced his skull

He walked unsteadily into the bedroom. Looked to the left.

Alexandria lay still. Face down. Hands reaching out, clenched; wrists a swollen red.

The ambulance wove through darkened streets, shrieking into the night mists. Nigel sat dumbly beside Alexandria and watched the attendant check her life functions, give injections, speak in a rapid clipped voice into his headset transmitter. Lights rippled by. After some minutes Nigel remembered his telltale. It was still keening at him. Alexandria's unit was running down, the attendant said, using most of its power to transmit diagnostics into the ambulance cassette. He showed Nigel the spot behind Nigel's right ear where a rhythmic pressure would shut it off. Nigel thumped at it and the wailing went away. A thin beeping remained; his telltale continued to monitor Alexandria's diagnostic telemetery. He listened, numb, to this squeaky voice from the very center of her. Her face was slack with a gray pallor. Here, now, linked by bits of microelectronics, he and she spoke to each other. The indecipherable chatter was a slim chain, but he clung to it. It would not stop even if she died; still, it was her only voice now.

They swerved, rocked down a ramp, jolted to a stop under red neons. The bubble surrounding him and Alexandria burst — the ambulance tail door popped open, she was wheeled out in her gauze of white, people babbled. Nigel got out awkwardly, ignored by the attendants, and followed the

trotting interns through a slideway.

A nurse stopped him. Questions. Forms. He gave Hufman's name but they already knew that. She said bland, comforting things. She led him to a carpeted waiting room, indicated some magazine faxes, a 3D, smiled, was gone.

He sat for a long time.

They brought him coffee. He listened to a distant hum of traffic.

Very carefully, he thought about nothing.

When he next looked up, Hufman was standing nearby, peeling away transparent gloves.

"I am afraid, Mister Walmsley, it's as I feared."

Nigel said nothing. His face felt caked with dense wax, stiff.

"An incipient brain stem hemorrhage. The lupus *did* equilibrate in her organs, as I thought. She would have been stable. But it then spread into the central nervous system. There's been a breakdown in the stem."

"And?" Nigel said woodenly.

"We're using coagulants now. That might possibly arrest the hemorrhage."

"What then?" a female voice said. Hufman turned. Shirley was standing in the doorway. "I said, what then?"

"If it stabilizes ... she might live. There is probably no significant brain damage yet. A spasm, though, induced by the lupus or our treatment —"

"Would kill her." Shirley said sharply.

"Yes," Hufman said, tilting his head back to regard her. He plainly wondered who this woman was.

Nigel made a halting introduction. Shirley nodded at Hufman, arms folded under her breasts, standing hipshot with tense energy.

"Couldn't you have *seen* the lupus was getting worse?" she said.

"This form is very subtle. The nervous system —"

"So you had to wait until she *collapsed.*"

"Her next biopsy —"

"There might not *be* a next —"

"Shirley!" Nigel said sharply.

"I must go," Hufman said stiffly. He walked out with rigid movements.

"Now you've fair well muddled it," Nigel said. "Shaken up the man whose judgment determines whether Alexandria lives."

"Fuck *that*. I wanted to know —"

"Then *ask*."

"— because I just got here, I didn't talk to anybody and —"

"How did you know Alexandria had collapsed?"

Nigel had thought he could gradually deflect the conversation and calm her down. He was surprised when Shirley glared at him and fell silent, nervously

stretching her arms to the side. Her face was ashen. Her chin trembled slightly until she noticed the fact and clamped her jaw muscles. In the distance he could hear a staccato laboring of some machine.

"Shirley ..." he began, to break the pressing silence between them.

"I saw the ambulance leaving when I came back from my walk."

"Walk?"

"I got to the apartment early. Alexandria and I had a talk. An argument, really. Over you, your working late. I, I got mad and Alexandria shouted at me. We were fighting, really fighting in a way we never had before. So before it got any worse I left."

"Leaving her there. Wrought up. Alone. When Hufman had already said she couldn't take stress in her condition."

"You don't have to ..."

"Rub it in? I'm not. But I'd like to know why you harp away on my taking time for JPL. *You* work."

"But you're her — well, she leans on you more than me, and when I got to the apartment and she was so weak and pale and waiting for you and you were late I —"

"She could lean on *you*. That's what we three are all about. Extended sharing, isn't that the proper jargon?"

"Nigel —"

"You know what I think? You don't want to face the fact that you'll lose Alexandria, and you're blaming me in some buggered-up way."

"You're so damned independent. You don't *share*, Nigel, you —"

"Can that *shit*." He took a convulsive, mechanical step toward her and caught himself. "That's, that's your own illusion."

"A pretty convincing one."

"I've tried —"

"When you *do* let go it's something seamy. Like getting drunk that night."

Nigel held his breath for a moment and let it out in a constricted, wheezing sigh. "Maybe. It all stacked up on me there. Alexandria, I mean. And this New Sons, I couldn't —" He stared directly at Shirley. In the bleached light her skin seemed translucent, stretched thin over the bones of her face. "We've never supported each other, have we? Never."

She studied him. "No. I'm not sure I'd want to, now."

Silence. A clink of glassware from down the corridor.

"Me. Either," he said across the pressing space that had formed between them.

"It shouldn't be that way."

"No."

"We weren't, weren't growing together. Ever."

"No."

"Then ... no matter what

happens to Alexandria, I think ...."

"It's finished. You and me."

"Yes."

With each exchange he had felt a pane of glass slide snugly into place between them. There was no going back from this.

"There's some, some *knot* in you, Nigel. I couldn't reach it. Alexandria could."

She closed her trembling eyelids, tears swelling from under them. She began to cry without a sound.

Nigel felt a swirl of emotions. He reached out toward her, and then a soft, padding shuffle caught his attention. Several people were coming down the corridor.

"Oh," Shirley said, the word coming from her like a thick bubble. "Oh." She turned, arms straightening to her sides, and went to the door.

Two robed men entered. Each held an arm of His Immanence. The small browned man between them moved with arthritic slowness, but his yellowed eyes moved quickly from Shirley to Nigel, judging the situation.

"Alexandria may want to see him again," Shirley said to Nigel. "I called from the apartment and asked him to come."

"You can tell him to clear off," Nigel said tightly.

"*No*," Shirley said. "She needs him more, more than she needs you —"

"Bugger that. Th —" and something clutched at his throat, stemming the words. His mind spun. He dimly sensed Alexandria lying nearby somewhere, near death, and Shirley here, these men, the awful sagging flesh of the old one. Pressing at him. Pressing. He turned, a hand out to steady himself. Sit down. Rest.

But he knew they would wear him down if he sat there meekly and listened to their droning talk. The room suddenly was a clotted, airless place, thick with the sweet incense of the New Sons coiling into everything. He swayed on his feet and gulped for air. Something tugged at his memory. The Snark. Venus. The shallow curve he'd plotted, now coming to its apex. Time ticking, the Snark —

"No." He raised his hands, palms outward. He pushed the cloak of air away from him. Pushing at Shirley and the men, who now receded in the watery light. Swerved away and lurched out the door. A destination formed in his mind. The shiny plastaform walls of the corridor slid past. The dense antiseptic air of the hospital parted before him and closed behind, his passage a spreading ripple.

XV

In the cab which carried him through the chilling night, he planned carefully. The past fell away from him and left only this clear, geometrically precise problem. He could not allow Evers and the ExComm to blunder when they tried to contact the Snark. He had worked for months on a coded transmission, a set of primes denoted in binary code. When arrayed in a rectangle, they formed pictures: a plot of Snark's path through the solar system, with circles for the planetary orbits; a breakdown of simply chemistry; a recognition code for fast transmission, once the Snark understood that someone was trying to communicate.

There wasn't time to convince Evers that Nigel's code made sense, was the best. Whatever ExComm recommended, it almost certainly would be mawkish and possibly disastrous; the Snark probably had been silent all this time because it was cautious. If their transmission was not clear and friendly, the Snark might simply pass through the solar system and away.

The sprinkling of lighted windows at JPL made a beacon amid the hills. Nigel checked through the guards and, instead of going directly to the main bay, went to his office. He got out the ferrite message cube that contained his own greeting for the Snark. He pocketed it and stopped at the men's room to check his appearance in the mirror. His eyes were red and his face seemed all angles, stark and sharp. He combed his hair and tried to look relaxed.

Outside the main bay door he pressed the spot behind his ear. His telltale beeped on. He opened the door.

The committee was there, and Evers, and Lubkin. Nigel moved among them, consulted, advised. He checked recent developments with the technicians. Lubkin showed him the signal they had made up; awkward, ambiguous, too complicated. Nigel nodded, murmured something. Lubkin gave him the ferrite cube with their signal in it and Nigel made a show of logging it into the communications board.

The casual air of the bay had evaporated. The Snark was still on the plotted course. Minutes ticked by. A half hour. The committee buzzed with speculations and worries. Nigel fielded their questions and watched the Snark approach. Venus Monitor still showed only an unresolved dot of light.

Nigel spoke into his head microphone, ordering Venus Monitor out of the tandem control scheme JPL usually used; now the satellite would respond only to

Nigel's board. He ordered the monitor's main radio dish to rotate and feed in aiming coordinates.

Casually he fished his own ferrite cube from his pocket and logged it into the board. He punched in orders, and the ExComm cube was retired into storage, while his own came to the fore, ready to transmit.

"What are you doing?" Lubkin said. The men around Nigel's roller chair fell silent.

"Transmitting," Nigel said. He tapped in the crucial part: recognition code. He had memorized his telltale code months before, in Hufman's office, and now he instructed his board to relay the Snark's reply to him. The board would transmit directly to the telltale, so that Nigel could hear the reply before it was replayed in the main bay for the committee. The delay was essential. The first few minutes were crucial.

"Here it goes," Nigel said. He pressed a button and the board transmitted a recognition signal; his telltale beeped in sympathy in his ear.

He ordered Venus Monitor to begin signaling the Snark.

The ship was coasting smoothly when the strong signal found it.

It was a clever code, beginning with a plot of the ship's own trajectory through this planetary system. So the beings of the third planet had followed all along, waiting. To reveal this now was a clear sign of nonhostile intentions; they could have kept their capabilities secret.

The craft quickly located the source of the pulse, circling this shrouded planet. Was this world occupied, too? It recalled an ancient amphibian race that evolved on a world not too dissimilar, whose inability to see the stars through the blanket of clouds had retarded them forever. And thought of other worlds, encased in baking layers of gasses, where the veined rock itself attained intelligence, laced together by conducting metals and white-hot crystals.

The machines studied the radio pulse for a fraction of a second. There was much here to understand. Elaborate chains of deduction and inference led to a single conclusion: the third planet was the key. Caution was no longer justified. The computers would have to revive the slumbering intelligence which could deal with these problems. They would become submerged in that vast mind. There was a bittersweet quality to the success of their mission; their identity would cease. The overmind would seek whatever channel it needed to understand this new species, and these more simple computers would be swept up in its currents.

The revival began.

The craft readied itself to answer.

The ferrite cube emptied itself. Nigel heard a blur of stuttered tenor squeals.

"Hey! What're you —"

Lubkin had noticed the switch

in cubes, too late. He reached over Nigel's shoulder toward the board controls.

Nigel lunged upward. He caught Lubkin's arm and twisted it away from the board.

Someone shouted. Nigel swung out of his chair and pulled on Lubkin's arm, slamming him into another man. Lubkin's coat sleeve ripped open.

His telltale beeped. Nigel froze. The pattern was clear, even though speeded up: the Snark was replying, sending back Nigel's original message.

Nigel wobbled. In the enameled light the faces of Evers and Lubkin swam toward him. He concentrated on the burbling in his head. There; the Snark had finished retransmitting Nigel's signal. Nigel felt a surge of joy. He had broken through. There was —

Someone seized his arm, butted into his ribs. He opened his mouth to say something, to calm them. Voices were babbling.

His telltale squealed. Shrieked.

Sound exploded in his mind. The world writhed and spun.

He felt something dark and massive move through him. There was a bulging surge, filling — The torrent swallowed his identity.

Nigel gasped. Clawed the air. Fell, unconscious.

XVI

Lubkin was talking to him. Meanwhile fireflies of blue-white dove and banked and swooped and stung his eyes. They were distracting. Nigel watched the cloud of singing fireflies flitting between him and the matted ceiling. Lubkin's voice droned. He breathed deeply and the fireflies evaporated, then returned. Lubkins words became more sharp. A weight settled in his gut.

They understood Nigel's state of mind, Lubkin said. About his wife and all. That explained a lot. Evers wasn't even very angry about Nigel's coded transmission to J-27. It was a better idea, the committee admitted, once they'd had a chance to study it. What the hell, they could understand ....

Nigel grinned dizzily. The fireflies sang. Danced.

Evers was pretty pissed at Nigel's suckering them, Lubkin said, forehead wrinkling. But now J-27 had responded. That made things better. Evers was willing to ignore Nigel's deception. Considering, that is, Alexandria.

"What?" Nigel sat upright in the hospital bed.

"Well, I —"

"What did you say about Alexandria?"

Nigel saw that he was stripped to the waist. Lubkin licked his lips in an uncertain, edgy way.

"Doctor Hufman wants to see you as soon as I'm through. We brought you here from JPL, after we got that call, asking where you were. I mean, we understood then."

"Understood what?"

Lubkin shrugged uneasily, eyes averted. "Well, I didn't want to be the one ..."

"What in hell are you saying?"

"I didn't know she was that *close*, Nigel. None of us did."

"Cl ... close?"

"That's what the call was about. She died."

A nurse found him a stiff blue robe. Doctor Hufman met him in the corridor where he was saying good-by to Lubkin and shook hands solemnly, silent. Nigel looked at Hufman but he could not read any expression.

Hufman beckoned to him. They moved down the hallway. Somewhere a summoning bell chimed. The sleek walls reflected back to Nigel the face of a haggard man, a day's growth of beard sprouting, upper face fixed in a rigid scowl.

"She ... she died right after I left?" Nigel asked in a croaking whisper.

"Yes."

"I, I'm sorry I left. You tried to call me ...."

"Yes."

Nigel looked at the other man. Hufman's face was compressed, eyes unnaturally large, his features pinched as if under pressure.

"You ... you're taking me to view her?"

"Yes." Hufman reached a gray metal door and opened it.

His eyes fixed on Nigel. "She died, Mister Walmsley. Uncontrollable hemorrhage. The operating room was busy. There were other patients. We put her aside for the orderlies to carry away. A half hour passed."

Nigel nodded dumbly.

"Then she began to move, Mister Walmsley. She rose from the dead."

Alexandria sat alone. She was in an elaborate diagnostic wheelchair; it bristled with electronics. Her white hospital smock was bunched above her knees and probes touched her at ankles, calves, forearms, neck, temples. She smiled wanly.

"I knew. You would return. Nigel."

"I ... I was ...."

"I know," she said mildly. "You. Spoke. To Shirley. You became. Frightened. By what was. Happening." She spoke slowly, the words individually formed and separated by a perceptible pause.

"The New Sons ..." Nigel began and then did not know how to continue.

"You need not. Have. Become. Excited. Nigel. He has told. Me. That you sensed it. Too. Briefly."

"He? Who ...?"

"Him. What you felt. Before you. Rejected the Immanence."

Nigel was aware of Hufman closing the door behind them, standing where he could hear but not interrupt. Alexandria seemed delicately balanced, fragile, suspended by some inner certainty. Encased.

"You felt Him. Nigel. My love. Perhaps. You did not. Recognize. Him. To you. For a long while. He was the Snark."

Nigel was silent for a long, stunned moment. "The telltale," he said out of the corner of his mouth, toward Hufman.

"Yes. Yes," Alexandria said in a flat voice. "That is. How He entered me. But I. Recognized Him. His true nature."

She closed her eyes and her chest rose in shallow, rapid breaths. Nigel glanced at Hufman. His legs were numb and he felt pinned to this spot, unable to advance toward Alexandria or retreat. Her wheelchair readouts blinked and shifted.

"Can someone — some*thing* — do that?" he said in a quick whisper. "Transmit over that telltale circuit?"

Hufman's voice was a resonant bass in the small room. "Yes, certainly. Hers has both acoustic and electric contact with her nervous system. It functions passively most of the time, but we can use it to send echo signals through the central nerves."

"Is that what's happening?"

Hufman moved to Nigel's side and, to Nigel's surprise, put an arm over his shoulders. "I believe so. I've told no one about this because, well, at first I thought I had made some awful mistake."

"Something is going *into* her. Through that telltale."

"Apparently. You collapsed, didn't you? At JPL? Probably an overload. Or whoever is transmitting shorted out your input and concentrated on her."

"But she was *dead*."

"Yes. All functions ceased. I estimated she suffered oxygen deprivation three to five minutes. Somehow a stimulus through the telltale jolted her breathing. Restored it to function. Her renal overload has subsided, too."

"I don't see how ...."

"Neither do I. There is work going on to use neurological startups, yes, but they are highly dangerous. And unreliable."

"It's bringing her back to life," Nigel said distantly.

"*What* is? Who's doing this?"

"I can't say."

Hufman looked at him piercingly. "You won't, you mean. You

and that other woman have some —"

"What other woman?"

"The one I met. You introduced us earlier. Alexandria asked for her. I wasn't thinking very clearly, I let her in, and —"

"Nigel?" Alexandria's eyelids fluttered, mothlike, and she moved her right hand weakly in a beckoning motion. Nigel went to her.

"He is. Seeing. Through me. Nigel. He wants. You. To know that."

Nigel looked back at Hufman helplessly.

"No, do not be. Afraid. He wants to see. To feel. To walk. In this world."

"Who is he, Alexandria?" Nigel's voice broke as he said her name.

"He is the Immanence," she said, as though to a child. "I know. What He has done. You and the Doctor. Do not need. To whisper. I know."

"He — it — brought you back."

"I know. From the dead. To see."

"*Why?*"

She looked at him serenely. Her eyes crinkled with some inner mirth. "In the sense. You mean. Darling. I do not. Know. But I do not. Question Him. Or question. Moving. With this moment."

In the antiseptic light her bloodless face shone both strange and familar, each pore sharp and clean.

Hufman's voice intruded: "As nearly as I can determine, she is kept alive by the telltale stimulus. Somehow the synaptic breakdown is being offset. Perhaps the telltale is providing control functions for her heart and lungs, taking the place of the damaged tissue. I don't believe that can last long, however."

Alexandria gazed at him steadily. Her smile was thin and pale. "He is here. With me. Doctor. That is all. That matters."

Nigel took her hand, squatting beside the heavy wheelchair, and studied her, frowning. Conflicting emotions played on his face.

There was a knock on the gray metal door.

Hufman glanced at Nigel uncertainly. Nigel was lost in his own thoughts. Hufman hesitated and then opened the door.

Shirley stood firmly in the doorway. Behind her were half a dozen New Sons clad in dhotis and jackets. A man in a business suit shouldered his way to the front of them.

"We've come for her, Doctor," Shirley said. Her voice carried a hard, brittle edge. "We knew her wishes. She wants out, she told me. And we have a lawyer to deal with your hospital.

XVII

Imagine thin sheets of metal standing vertically, separated by millimeters. In the stark light they become lines of metallic white. In slow motion a projectile, spinning, the color of smoke, strikes the first sheet. The thin metal crumples. The sheet is rammed back into the second layer, silently, as the film goes on. Though it moves with ponderous slowness, you can do nothing. The second sheet folds. At the point of impact the bullet is splattering, turning to liquid. But it goes on. The third silvery line is compressed into the fourth; the lines form a family of parabolas, shock waves focused at the head of the tumbling, melting bullet. And you cannot stop it. Each sheet presses on the next. Each act —

Nigel saw this dream, lived through it each night, yet could do nothing. Events compressed. Each moment of those days impinged on the next, carrying him forward in a stream of instants.

— At the hospital. Hufman objected between clenched teeth. The lawyer smooth, voice resonant with certainty. Nigel had no legal rights over Alexandria; he was not her husband. And Alexandria said she wished to leave. The law, thin sheets compressing, was clear. She wished to live — or die — among the New Sons. They understood. They wished her to walk with Him.

— The wheelchair. Winking its update metric lights, purring, ignored. The New Sons in dhotis wheeling her from the ambulance toward the Baptist church. The old man, the Immanence. His face a leadened silver, lit by arc lamps ringing the church. He cupped his hands and nodded to Shirley. Alexandria was between them, the focus of a swelling crowd. Shirley spoke reverently to the stopped, gnarled Immanence. In the moving shadows Nigel thought he caught a glance from those yellowed eyes. A look of weighing, judging, assessing. The old man gestured. There was a subtle shifting in the crowd. The tide of bodies that opened before Alexandria's wheelchair now lapped around behind her. Sealing her off. Shirley on the edge, the Immanence, sagging face aglow, at the center. Toward the church. An excited babble, a murmur. And the liquid crowd swirled between Nigel and the others. Cut him off. Slowed him. *Shirley*, he cried out. *Alexandria*! Shirley had mounted the steps into the church. She turned, looking back over the tossing sea of faces. She called out something, something about love, and then was gone. Into the shadows. Following the winking wheelchair.

* * *

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Filter Brands (Regulars)	MG TAR	MG NIC
Kent Golden Lights* — King Size	**8**	**0.7**
Lucky 100's — 100mm	9	0.6
Pall Mall Extra Mild — King Size	10	0.7
Vantage — King Size	10	0.7
Parliament* — King Size	10	0.8
Doral — King Size	13	0.9
Multifilter — King Size	13	0.8
Marlboro Lights — King Size	13	0.8
Winston Lights — King Size	13	0.9
Raleigh Extra Mild — King Size	14	1.0
Viceroy Extra Mild — King Size	14	1.0
Fact — King Size	14	1.0
Viceroy — King Size	16	1.0
Virginia Slims — 100mm	16	0.9
L&M — 100mm	17	1.1
Benson & Hedges — 100mm	18	1.0
Pall Mall — King Size	18	1.2
Lark — King Size	18	1.1
Marlboro — King Size	18	1.1
Winston — King Size	19	1.2
Tareyton — King Size	20	1.3
Lowest of All Brands Sold	0.5	0.05

*FTC Method

Filter Brands (Menthols)	MG TAR	MG NIC
Kent Golden Lights Menthol* — Kings	**8**	**0.7**
Iceberg — 100mm	9	0.6
Vantage — King Size	11	0.7
Multifilter — King Size	11	0.7
Doral — King Size	11	0.8
Salem Lights — King Size	11	0.8
Fact — King Size	13	0.9
Kool Milds — King Size	14	0.9
Marlboro — King Size	14	0.8
Belair — King Size	15	1.0
Alpine — King Size	15	0.8
Virginia Slims — 100mm	16	0.9
Saratoga — 120mm	16	1.0
Silva Thins — 100mm	16	1.1
Pall Mall — 100mm	16	1.2
Eve — 100mm	17	1.1
Kool — King Size	17	1.4
Benson & Hedges — 100mm	18	1.0
Salem — King Size	18	1.2
Winston — 100mm	19	1.2
More — 120mm	21	1.6
Lowest of All Brands Sold	0.5	0.05

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—On 3D. She was the same — calm, compact, radiating an inner sureness. The snowballing of interest around her had not touched that core. The eyes were set back, away from the questions put to her by her interrogators; viewing, studying. Nigel watched her in their darkened apartment, lit only by the glowing 3D. He saw Shirley in the background crowd. Her face was rapt, like those around her. Three individual Immanences of the New Sons escorted Alexandria down a ceremonial ramp. They were each tall and stately men, sunken cheeks, palms turned outward in ritual gesture; ascetic; lean. They were very careful of her, their first confirmed miracle. The program paused to run a fax of Hufman, angry, jaw muscles clenching. He admitted under direct questioning that Alexandria had died. Was certified. Abandoned. And then rose.

— Did she have an explanation? the interviewer asked.

Hufman's weary face faded from the screen, to be replaced by Alexandria's.

She smiled, shook her head, no. And something shifted far back in her eyes.

At the church they would not let him in. To Nigel all doors were barred.

When his story reached the 3D people they interviewed him, paid attention, promised results. But when the interview was broadcast, Nigel came through as a bitter, hostile man. Had he really said these things? he wondered, watching himself. Or were they adroitly rearranging his words? He could not remember. The metallic lines compressed, converged.

At JPL, alone with Evers and Lubkin. Outside, sunlight glinted on trucks as they hauled in new equipment. The facility was being beefed up.

Lubkin: We heard about Alexandria recovering, Nigel. That's great news. We were kind of wondering if, well ....

Evers: J-27 transmits on two channels, Walmsley. Using a circuit *you* logged into the board. We've got Ichino working on the main signal, but we're afraid to tamper with this other one. Whatever's receiving it —

Nigel: It's my telltale. You know that, don't you?

Evers: Yes. We just wanted to give you the chance to admit it.

Lubkin: You're receiving J-27? Directly?

Nigel: No. It's found some way to sidestep me.

Evers: We'll cut it off then.

So he had to tell them about Alexandria. And beg them to allow

the transmissions through JPL. Otherwise she would die.

Stony-jawed, Evers nodded. He would let the beeping thread of life go on. They would even monitor it, eavesdrop, try to decipher what they could. The code was a dense thicket of complexity.

After Nigel had left Evers' office, he could remember little of whatever else was said. Events had become so constricted, so compressed, that he confused people and moments. But he could recall Evers' calculating bland expression, the pursed lips, the hint of forces finding a new balance.

XVIII

He sat on the dusty hillside and watched the people streaming into the V of the canyon. Most of them had made the two-hour ride from Mexico City, carrying box lunches. There were bunches from Asia, though, carefully shepherded by guides. And Europeans, identifiable by their brown standard-issue trousers and woolly shirts, severely cut. Separate rivulets which emptied into the canyon.

A flight of birds entered the canyon from the south, fluttering higher as they came. Probably disturbed by the hum of the vast crowd, Nigel thought. He licked his lips. The morning air already shimmered, far warmer than it had been in Kansas two days before. Or had that been Toronto? He had difficulty keeping the days straight. Each of Alexandria's appearances drew a larger crowd; these, he'd been told, had emcamped days in advance.

A hundred meters away, men labored to frame up more bleachers. It was pointless; people were sitting on the jutting rock ledges already in immense numbers, far more than last-minute measures could accommodate.

The hills swarmed with life, the ripplings of the throng like cilia on an immense cell. On the narrow floor of the valley the impassioned performed: tumblers, self-flagellators, psi acrobats, chanters with their hollow booming sound, dancers. The annular rings turned. Brimming loving flying dying. Fling. Shout. Moan. Stamp.

A last, the excited babble came. At the head of the canyon a white dot blossomed. Alexandria in her wheelchair, wrapped in glittering robes. She occupied a platform among the baked rock shelves. Four Immanences flanked her.

"To fullness!" chanted the crowd. "Oneness!" In the sky a winged dot burned orange at one end. Against the pale desert blue a cloud formed. A white sculpture for the occasion: an immense alabaster woman. Wings. Hand raised in greeting, blessing, forgiveness. Alexandria.

Words from an Immanence. Music. Trumpets blared and echoed from the stones. Stamp. Sing. Running living leaping soaring. Salvation in the shimmering, enchanting heat.

He knew the litany well. It washed over him without effect. He was numb from following her. He knew he could still stay close, still see her in the distance. A white dot. The walking, talking dead. Come and see. Have your hopes raised. Regain your faith. Joyful singing love forever.

And yet, and yet ... he envied her. And loved her. He grimaced.

Her voice suddenly rolled down the canyon, booming, silencing the mob. She spoke of Him, the One, and how He saw through each of us. Of a vision —

She crumpled. Something banged the microphone. A man shouted hoarsely. Nigel squinted and could make out a knot of robed, milling figures clustered where Alexandria had stood the moment before. Shrill voices called out orders.

She was going at last. Woodenly he stood, brushed away dust from his pants, staring fixedly ahead. Going. Going.

In his room in Mexico City he let the 3D play while he showered and packed. A short balding man, pink skin, fleshy cheeks, said that Alexandria had suffered a relapse but had not yet joined the Essential One, as she herself had predicted she soon would.

His telephone rang.

"Walmsley? That you?" Evers' voice was high and ragged. Nigel grunted a reply.

"Listen, we just heard the news. Sorry, and all that, but it looks like she's dying. We know you've been following her. Security's tracked you. Have you been able to find out what she's told the New Sons? I mean, about J-27?"

"Nothing. As far as I can tell."

"Ah. Good. I've gotten word from higher up to be pretty damned sure nothing gets out. Particularly not to those ... well, it looks okay, then. We'll —"

"Evers."

"Yeah?"

"Don't cut the second channel. She isn't dead yet. If you do, I'll tell the 3Ds about ... J-27."

"You're ...." Evers' voice cut off as though a hand had cupped over the speaker. In a moment Evers said, "Okay."

"Keep it on indefinitely. Even if you hear she's dead."

"Okay, Walmsley, but —"

"Good-by."

For a long time he stood at the hotel window and watched pedicabs lace through the lanes of the Paseo de la Reforma, mostly the

late crowd streaming out of Chapultepec Park. The hivelike comings and goings of man.

So he had made one last gesture, threatened Evers. Perhaps kept her alive a few more hours or days. For what? He knew he would never see her again. Only the New Sons would relish those last moments of her.

So ... back to JPL? Begin over? The Snark still waited.

Eventually, yes. He needed to know. Always the clean and sure; that's what he sought. To *know*. Something that Shirley, and perhaps even Alexandria, had never quite understood.

Or ....

He fluxed the window and a seam parted in the middle. At least two hundred meters down. Into a pool of racing yellow headlights. Compressing lines, snuffing him out like a candle burned too low.

He looked down for long moments.

Then turned. Picked up his bags and took the shuttle down to the lobby. He checked out, smiling stiffly, tipped a porter, left his bags and went out onto the sidewalk. Soft air greeted him. He shoved his hands into his pockets and decided to take a walk around the block to clear his head.

From his pocket he took a wedge of plastic. It contained microminiature electronics, a power source and transducer. He clipped it into a holder beneath his collar and made sure it did not show. It rubbed as he walked.

He wanted to be in the open when he tried this. A building might shield the signal at these distances, or blur it. He could take no chances. When Alexandria died, the Snark could still use the channel ....

He reached behind his ear and pressed. The telltale hummed into life. The bit of plastic and electronics he'd had made up at such expense rubbed his neck. He pressed a thumb against it and heard a faint ceramic click.

He walked. Stepped. Felt a massive, bulging surge —

Stepped —

XIX

A day later: he steps —

— onto the sheets of folded rock: stone decks of an earthen ship, adrift in this high desert. A craft of baking rock. The ages have layered and compressed this wrinkled deck; life skitters over it.

He mounts the flaking rock. A scorpion scuttles aside. Boots bite into crunching gravel.

— *plants licking, foamlike, at the coarse crust* —

The looming presence

peers out

sucks in

Understands

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— and is quiet.

In this brittle Mexican desert he marches on. The air is crystalline; puddles from a recent rain splinter the descending light.

— *soil awash in life* —

— *sun spinning over the warped earth* —

Nigel smiles. The being rides back, behind the eyes.

His legs make easy strides. A bootheel rubs. Leather creaks. Arms rocking, calves bunching. Heart pumping lungs whooshing skin warm boot turning on a stone—

From this awareness Nigel selects. The being does not. He eats it all.

A rabbit bounds to the side. A claret-cup cactus beckons. Nigel stops. Unscrews canteen. Drinks.

— *feels the rushing silvery quilted reddening flavor on his tongue* —

Remembers: Buying the backpack, goosedown sleeping bag, boots. The airport. A short flight into the high desert. At first it had seemed like a fog, this presence in him. A faint trembling pressure that rode behind his eyes, that sensed the living, fine webbing of creatures around them. Perhaps that was why the being had wanted to come here. To touch the earth and see it raw.

The being reaches out to taste, through him, and Nigel enfolds it, too, the desert all *bleached carved turning beneath a yellow flame* —

— And senses some dim trace of what the other being must feel. It honored the sanctity of living creatures; it would not have bid Alexandria to rise again, but she was already gone, already dead to her own world. So to see this fresh planet, the being used a body that humans had already cast aside.

In those first moments of contact with Nigel, on the street in Mexico City, the being had very nearly withdrawn. But when it saw the ruined canvas inside this man, it had stayed. Using a subtle knowledge, learned from thousands of such contacts with chemical lifeforms, it undertook some brush of contact. And remained. To taste this sweet world. To shore up this raw wound of a man.

— *blue custard sky alive with flapping life, drifting splotches, writhing clouds* —

This place is alien.

Pausing, he reflects. And sees the rippling weave of Evers and Lubkin and Shirley and Hufman and Alexandria and Nigel. A play. A net. Gravid workings. Each a small universe in itself, but each together. Each a firmament.

So familiar.

So alien.

Deep, buried in the currents of the torrent, Nigel swims.

Swimming, he heals.

Someday it would pass. The looming presence sat astride the flood of perception and took it all. Before Nigel could apply the filters of his eyes, ears, skin, touch, smell — before all that, the being sponged up this new and strange world, and in the act of taking, altered it for Nigel, too.

And someday the being would go. Pass through. Nigel would split his cocoon then. Emerge. Into the splintering day. On doddering feet.

He would pass through that lens. All would pass. But for the moment:

The Snark

feels the booming
pulse
unfolds the rocks
before him
carves the dry air
smacks boots into
yielding earth —

Seeing

tasting

opening.

Eases him into the warming world.

Pins him loving to the day.

— EversLubkinShirleyHufman AlexandriaAlexandria — Thinking of them, knowing he will return to that world some day, a weight slips from him, and he rolls and basks and floats in these familiar waters of the desert. EversHufmanShirley.

Alien, they are, his brothers.

So alien.

INTERNATIONAL SCIENCE FICTION

Another year has seen the Lem cultural invasion continuing, with new titles from The Seabury Press and a handsomely uniform edition in paperback from Avon. The first major release of the film of *Solaris* has prompted a reissue of the novel by Berkley (see James Blish's perceptive review, F&SF, May 1971). Ace Books, now a division of Grosset & Dunlap, reports that its paperback of *The Invincible* (F&SF Books, July 1974) is one of their bestsellers. No science fiction writer in recent memory has received such attention from the culture at large. The significant thing about Lem's notice in *The New York Times Book Review* (August 29, 1976) is not so much that he got the front page, or that six books were reviewed, or even in the length of the review, but in the fact that science fiction was mentioned openly in the headline. No one tried to say that Lem is not a science fiction writer; the fact was proclaimed, albeit with the proviso that Lem is also a major figure of letters "and one of the deep spirits of our age." This has not happened in quite this way, not even in the time of Wells; the science fiction world is not used to such unequivocal praise coming from an outsider like Theodore Solotaroff, the editor of American

GEORGE ZEBROWSKI

Books

The Cyberiad by Stanisław Lem, Seabury Press, $9.50, Avon $1.50

The Star Diaries by Stanisław Lem, Seabury Press, $9.95

The Futurological Congress by Stanisław Lem, Seabury Press, $6.95, Avon, $1.25

The Investigation by Stanisław Lem, Seabury Press, $7.95, Avon, $1.50

The Best From the Rest of the World, edited by Donald A. Wollheim, Doubleday, $7.95

Mortal Engines by Stanisław Lem, Seabury Press, $9.95

Japan Sinks by Sakyo Komatsu, Harper & Row, $7.95

The Mind Net by Herbert W. Franke, DAW, $.95

Zone Null by Herbert W. Franke, Seabury Press, $7.95

Review. I'll get to some interesting reactions later.

Lem works in the realistic and fantastic modes of science fiction. The realistic works take hard science fiction into difficult areas of possibility, confronting the reader with ambiguous problems of situation, knowledge and human perception; the fantastic works are uniquely inventive, and satirical (often of the very things the author takes seriously in his other mode); they are rich and full line by line, page by page, ranging far beyond the casual inventiveness of surface cleverness. *The Cyberiad* is a deceptive book in this regard; a careless reader might quickly form a superficial opinion from the first or second fable, and miss the increasing delights of the ones that follow. The fables of *The Cyberiad* climb; story after story outshines and resonates with previous ones. The tales enlist a variety of responses — laughter, sadness, depression, joy, as well as demanding reader understanding of various problems.

In both realistic and fantastic modes, Lem draws on areas of knowledge and general problems of culture in a systematic way. Both his fantasy and science fiction are written out of a thoughtfully critical view of the nature of these forms. Trurl and Klapaucius, the sallying instructors of *The Cyberiad,* are first given "Diplomas of Perpetual Omnipotence," which sounds to me like the kind of license taken out by writers of bad sf. The arrangement of the stories suggests a feast. Three shorts, "How the World Was Saved," "Trurl's Machine," and "A Good Shellacking" open the book, followed by "The Seven Sallies of Trurl and Klapaucius;" then we have dessert in "From the Cyphroeroticon, Or Tales of Deviations, Superfixations, and Aberrations of the Heart," from which we are given "Prince Ferrix and the Princess Crystal." The book reaches its height in the tale of Mymosh the Self-begotten in "The Tale of the Three Storytelling Machines," a marvelously sad and profound tragedy of a junk god, and in "Altruizine," which should interest students of Star Trek's Prime Directive and interventionists of all kind. Ultimately, *The Cyberiad* is an example of itself, a feat of constructorship beyond the skills of Trurl and Klapaucius, whose claim to fame lies in the fact that Lem created them for his book. There is nothing like *The Cyberiad* in all science fiction, though some of Sheckley and Kuttner moved in this direction. Most importantly, *The Cyberiad* is a major work of fiction to be placed next to the most ambitious works from anywhere, in or out of science fiction.

* * *

The Star Diaries and *The Futurological Congress* both feature the lone astronaut Ijon Tichy; the second book is subtitled "from the memoirs of Ijon Tichy." There have been other stories about Tichy which the translator lists in his note to *The Star Diaries,* but these two books comprise the major ones. In the first book, Tichy travels around the universe, encountering adventures and problems in the manner of a lone Quixote moving through the continuum of science fictional concepts, and treating them as what they too often are: anthropocentric rather than realistic plays of the human imagination. "The Seventh Voyage," for example, returns to the concept pioneered by Heinlein in "By His Bootstraps" and "All You Zombies." In Lem's hands the idea of meeting yourself in time is grotesquely moving, a nightmare comment on the nature of human identity. Elsewhere Tichy discovers that a robot state run by a villainous computer is a complete fraud; the robots are only men in disguise, the state a result of political corruption. "I was glad of the outcome," Tichy says, "since it restored my faith... in the natural decency of electronic brains. Yes, it's comforting to know, when you think about it, that only man can be a bastard."

In *The Futurological Congress* Tichy goes forward in time to observe a society cut off from reality through the rule of the "chemocrats." The verbal inventiveness of this story, both in English and in the original, culminates in a stripping away of falsified perceptions. Lem's verbal inventiveness is as funny as in *Memoirs Found In a Bathtub,* suggesting an infernal future through a host of coined terms, scrupulously minted.

The Investigation is Lem's Fortean novel. As such it expresses more truthfully than any other the Fortean skepticism toward reality, toward "the indeterminacy of all that surrounds and retreats from the structure of human consciousness." Dead people are getting up and walking away, it seems. The situation is impossible, the explanations varied and difficult, reminding us of the method of multiple hypotheses in *Solaris* and *The Invincible.* The result is inconclusive, but the possibilities which Lem sets into motion within our minds are challenging and entertaining; for example, there is the chilling notion of what would be implied by an undeniably genuine miracle. The novel is vividly atmospheric, evoking the black film environments of the hard-boiled detective school. As usual Lem tries harder and takes the material out of itself. Translated from the Polish by Adele Milch.

Mortal Engines is composed of eleven "fables for robots," a short story, "The Sanatorium of Dr. Vliperdius," and two long stories, "The Hunt," and "The Mask." There is also a long introduction by Michael Kandel about Lem's work and career. Kandel is Lem's best translator, as well as a scholar and critic whose understanding of Lem's work is both perceptive and detailed on a number of fronts (for example the role of cybernetics and the history of science in Lem's work). Kandel's translations of Lem earned him a National Book Award nomination in 1975, and one hopes this honor will eventually be his; he is the kind of translator who makes available the letter and spirit of works that would otherwise be lost, or mangled, as in the case of *The Invincible.*

The "mortal engines" refer to artificial intelligences which, though subject to damage and death as man is, must be regarded as conscious beings after a certain level of development is reached; to program them is slavery, to destroy them is murder. The logic of their growth toward the complexity of consciousness leads inevitably to independence. Most sf treatments of this problem are either technophobic or naively incomplete. The incomplete approach takes a behavioral view of machine intelligence (we'll never know if it's conscious, and for practical purposes it doesn't matter); this ignores the same question about the "software" of human minds — how do we know that people are conscious inside? A similarly naive view of matter transmission, or human duplication, says that socially it doesn't matter if "I" am destroyed at point p and an exact duplicate appears in the receiver terminal at point q. Socially all relationships would remain the same, except that "I" the first would die and "I" the second would be born (two good examples of this theme are *Rogue Moon* by Algis Budrys and *The Duplicated Man* by James Blish and Robert Lowndes). For Lem, the individually conscious intelligence, not life itself, is supremely precious and *unrepeatable* as an "inside experience." The humanism of cybernetics is therefore the basis of ethical imperatives, applicable to all mortal engines of conscious intelligence. No writer has been this thorough, thoughtful, original and entertaining with this theme. Man is the villain in the "robot fables," conscious intelligence the hero. Clarke's revision of Pope, "The proper study of man is not man, but intelligence," is realized with an elegance of implication, storytelling and humane compassion.

The reaction to Lem in Western science fiction continues with high

praise or hostility. Lem is not above criticism. Many of his views in science, philosophy and literature lie in problematical areas where a number of opposing positions must coexist. His views on science fiction grow out of a lifetime of disappointment over sf's failure to deliver on its promise, to really come across with the originality of prose and content to which it so often pretends. This disappointment has also been the experience of most ambitious editors and writers in this field. There is little "matter of taste" about the fact that most sf writers are bumblers and amateurs in fiction and science fiction (even normally good sf is rare); they have a distaste for learning and sound argument and a suspicion of any rigorous, thoroughgoing approach. Bester, Blish, Knight, Sturgeon have all said these things at one time or another; coming from a foreigner it seems insufferable, even when he includes much of his own work in his so called "vicious attack on Western sf." (Does anyone remember the bitterness over Bester's resignation as reviewer from these pages?) The fallacy persists that a harsh critic of sf hates the field, and must do better before anyone will listen to him, even though he might be right and fail. If he is right and succeeds in his own fiction, the prideful might still unfairly attack his fiction.

The confused method of a recent review makes a good example, since it echoes many others. The critic invents a fault and then proceeds to find it (in *The Futurological Congress*); in this case the idea is that Lem does not know how to integrate "exposition" into his story. This assumes that the writer should "slip it in painlessly" or "leave it out" if it slows up the story; do it the *genre* way (no talk) or it's no good. Blish wrote in his review of *Solaris:* "This story is slow moving, but this is not a defect in a philosophical novel; when Lem slows down, he wants the reader to slow down too, and *think.*" The genre-jabber school of sf criticism, however, does not permit us to read a book in the way it was intended, without trying to jam it into a mold; the genre bound reviewer assumes that a book is the way it is because of the author's *inability* rather than his intention. Lem writes according to his own convention; fantastic elements are not present in his work only for their own sake, for the sake of a sense-of-wonder high. Lem's approach, if we don't want to talk in terms of better or worse, is different and adequate to *his* aims. If readers and reviewers are not up to seeing the demanding, virtuoso dimension of Lem's work, then there is nothing to be said to them, except that the pleasures of good science fiction may be found at

every level of thought and sophistication.

The most interesting fact about Lem is that he is neither a technophobe or technophile; he prefers to dig out problems that permit neither optimism nor pessimism, but the reality of human frailties and capacities. His later books are darker, but this battle is the clearest conflict in all his work; Lem is ready to admit the worst or the best, rather than wish either into being. In dealing with problems of the self, the mystery of experience, of suffering, love, death, free will, hope — all through the lens of the fantastic and future possibility — Lem's science fiction expands and intensifies the confines of genre's patterns; his is an adult science fiction, as once practiced by Wells, Stapledon, Lewis, and others. John Campbell recognized this direction of adult concern when he wrote of Stapledon: "...Stapledon's science fiction is beyond the ordinary meaning of science fiction — a most remarkable extension of man's history and philosophy toward a visualization of the ultimate goals of life." Although his work is very different from Stapledon's, Lem always depicts human life and future possibilities as a problem, a predicament, a situation built of natural history and the novelties of human civilization, into which each generation is born and struggles with toward a future of confusion and hope.

Since my last review of Lem in these pages, the hostility toward him has grown within the sf community (witness the termination by SFWA of his Honorary Membership on the technical ground that it was given mistakenly; ironically, Seabury has reported this membership on Lem's book jackets as "An Honorary Nebula Award"). A number of writers have voiced their resentment over the fact that the *Times* notice went to a foreigner, completely ignoring the merits of the case, or the spirit of kinship that should exist between sf writers. Michael Bishop was the first to say in print that Lem is our brother and that differences of view are not a just cause for feuding. I say, with a number of others, that Lem is Nobel Prize material, and that he'll get it (though Borges may get it before him), and that his reception as a writer of science fiction brings credit on the entire field, like it or not. We talk of alternative futures and new ideas; we should welcome the differences between us. What is happening to Lem within the sf community has yet to be widely understood, though I hope that this will change.

There is a cultural analogy, one which I would not wish to push too

far, which gives a plausible background against which to view Sakyo Komatsu's *Japan Sinks*. England is to Europe as ancient Greece was to Persia; Eastern Europe stands to Russia and China in the same relationship; Warsaw is to Moscow and Peking as London and Paris are to Europe. Carrying this to the far east, Japan stands to Asia as Britain once stood to Europe. The Japanese are the Asian Britons in industry and business (a change from military empire seeking in the first half of the century). In the tradition of the English, Komatsu is continuing the home disaster sf novel, as practiced by Wells, Wyndham, Christopher, Cooper, Ballard and others. We have seen the trauma of World War II in the written and filmic sf of both countries. Komatsu's novel does without Martians, atomic war, or monsters; the villain is geological. The wide canvas of the story shows the effect on the Japanese people of a large national disaster; the result is moving, often stunning, as we descend into the author's view of the Japanese character.

However, like World War II stories and the British disaster novel, the product is fated to have more interest for the British and Japanese, the students of those cultures, or the people living in the localities mentioned in the story, than for the rest of us; we have our own disasters. Komatsu, to his credit, has written a novel rather than a genre exercise, complete with social observations and authentic details. Translated from the Japanese by Michael Gallagher.

From West Germany we have two novels by that country's own resident polymath, Herbert W. Franke, who was guest of honor at the World Science Fiction Convention, Heidelberg 1970. *The Mind Net* dates from 1963, and is a perversely clever, elegant book with an ending which demands not to be given away. Franke knows where he wants to go and how to do it. His prose is lean, direct, often emotional. The central problems of *The Mind Net* involve the accidental revivication of an alien intelligence and a psychiatric anti-utopia. The last third of the novel is intriguingly vivid in its picture of a derelict human existence beneath a future city of vast extent. The denouement is striking and sad, plunging us forward in time to witness a tragedy of time lost and a further vision of pathos and beauty. The cover by Freas is one of his better ones. (DAW is also the American publisher of Franke's *The Orchid Cage*, dating from 1961. The admirable translations from the German are by Christine Priest.)

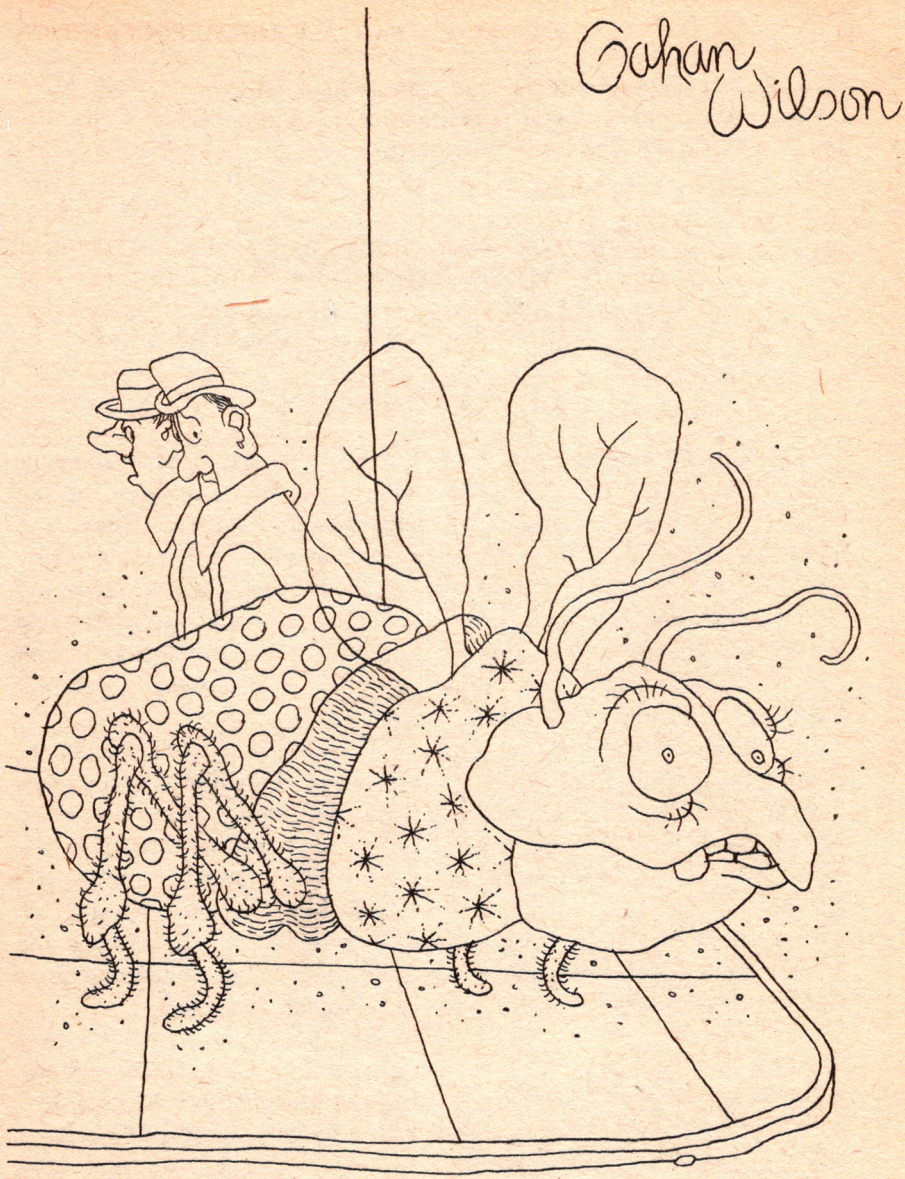
Zone Null (1970) is a satirical ambiguity, designed to shake up

the reader. The story involves the penetration of an enigmatic landscape and the opening of a long isolated culture supposedly inimical to the exploring United Commonwealths. As in *The Mind Net* (which is comparable to Lem's *The Futurological Congress* in its treatment of a falsified reality), *Zone Null* moves in the direction of things alien and strange, only to return home from another angle. Like Lem, Franke is qualified in a number of disciplines, among them mathematics, physics, chemistry, psychology and philosophy; his interest in speleology shows in his subterranean scenes. Often called one of the four best sf writers in Europe, Franke brings his background into his fiction in many thoughtful ways, always developing a problem or paradox of much originality and penetration. *Zone Null* is translated from the German by Chris Herriman.

DAW and Seabury deserve thanks for continuing such strong programs in foreign sf. Wollheim, especially, deserves credit for pioneering translations and imports regardless of his own views (he published *England Swings SF*, edited by Judith Merril, in paperback even though he had little sympathy for its contents). His collection, *The Best from the Rest of the World*, Doubleday, cloth $7.95, features many of the European writers he has published in paperback — Gérard Klein, Pierre Barbet, Sam Lundwall, Herbert Franke, among others. There is an informative introduction on Western European sf publishing, which promises that there will also be a volume on Eastern Europe. The stories range from good to excellent, my favorites being "Ysolde" by Nathalie-Charles Henneberg from France (translated by the far seeing Damon Knight), and "Paradise 3000" by Herbert Franke, translation by Christine Priest.

DAW has also just published *The Final Circle of Paradise* by Arkadi and Boris Strugatski, following the DAW-Seabury *Hard To Be A God* which was published to good reviews. Department of Lost Works: *The Lost Face* by Josef Nesvadba, an excellent collection of stories from Czechoslovakia (Taplinger, cloth 1971) has not to my knowledge seen a paperback and deserves one (F&SF has published stories by the author); how about it, DAW?

What has become clear since 1970 is that foreign sf publishing in the United States is on the increase and will probably be well established by the end of the decade.



"It's that bug that's been going around town."

A short and charming story with a happy ending, about unspoiled and unnamed places. What more could anyone ask — except perhaps for the name of the place . . .

Getting Back To Before It Began

by RAYLYN MOORE

For a long time the boy was alone, riding mile after mile at the back of the bus, watching the names of things pass by outside. Calumet, Feckless Joe's, Gillette, Gilbey's, Goshen, Gretna Estates, Kent, Lake Manahawkin, Lumberville, Miracle Whip, Northend Supply, Poor Old Frank's, Prudential.

At Sacktown the girl got on. Finding the seats up front all taken, she wandered back to where he was and sat beside him. Because he was a dreamy youth and not forward at all, he let the bus go through Saugus, Stickney, String City and Suquamish before he even spoke to her, and then he only said hello and how are you?

Since she was shy too, they traveled through Tioga, Transfer, Tribble and Troy before she answered. She said I'm fine and how far are you going?

He smiled and said I'm glad you asked. I've been riding this old bus a long time just hoping someone would inquire. You see, I'm an idealist and I have a theory, and people in my position need someone around to explain things to. (As is the case with many dreamy youths who are not forward, with this boy a little encouragement went a long way.)

He said I plan to ride to the absolute end of the line, past the place where the names stop. Out there everything will be unspoiled because it's unnamed. Haven't you ever noticed that once naming begins, ruin follows? Sometimes the destruction is fast, sometimes slow, but it comes. Inevitably.

She thought about it while they rode through Ulm, Uncompahgre, Underhill and Upper Black Eddy. When the bus stopped at Uz to let out some people, she said how much farther will you need to travel before you come to the place where the names run out?

I do like you very much, he said, because you ask all the right questions. And for other reasons too, he added, looking frankly for the first time at her plump round arms and cute knees and her light-bright long hair falling over the near velveteen collar of the coat around her shoulders. In answer I would say that all the evidence seems to indicate that it can't be much farther. For one thing, notice how lots of passengers are getting off now but no one is getting on.

She watched awhile with him and it was true. Riders debarked from the front of the bus in the towns of Value, Veach, Viroqua and Vultee, but in none of these places did anyone get on.

He said you will notice also that the billboards with the names of all the useless things in the world on them are getting fewer and farther between. Which is probably because these are all things one will not need to remember in the nameless country.

This was also true, the girl saw at once. The colored-up and lit-up names for tires, digestive aids, steakhouses, toothpaste, suntan oil, batteries, deodorants, household appliances and floor waxes appeared only sparingly in and near the villages of Walhonding and Wanilla, and not at all as the bus sped through Warshoal and Waverly Creek, where another clutch of passengers debarked but no one boarded.

Of course, the boy explained (eagerly now), the trick will be for us to get well past the borderline, out where there's not even the dimmest concept of propernaming things and towns, because once one place has heard of another place, so to speak, and begins distinguishing it by a name, even a name like Other, the disease has already struck, you see. The rot has set in.

Us? she said, harking back to the beginning of his speech. *I'm* getting off this bus in Zerba where I plan to stay with an aunt and get a job in the Zigzag Pizza Palace.

The boy said quickly oh you can't do that. You must come with me.

Which just goes to show that by now he'd discarded his backwardness completely. But already the bus was rushing through Xelto heading for Yelvington, and he knew he didn't have time for a relaxed and orderly wooing.

It was touch and go for a while, but by Zelienopolis she had made up her mind, and as they whizzed right through Zerba without stopping, bus tires singing on the pavement because the hamlet was too small even for SLOW signs, she closed her delicate, trembling eyelids and bit hard into her berry-red lower lip, but she did not pull the cord to halt the coach.

Everyone else did though, many times over. By the time the bus reached Zincville there was only one other passenger left besides themselves, an elderly gentleman in a Borsolino hat, and he got off in Zooks Spur.

After that they rode on and on, finding out it was really true and becoming more and more excited. For out of the windows everything began looking unspoiled. There were a few sparse settlements, but evidently not having heard of one another, they had no names.

The names had truly run out. Been all used up. No more billboards loomed against the horizon. No more names on mailboxes and then finally no more mailboxes, nor utility poles, nor even fences, which would imply ownership, which would require naming of places.

They were trying to choose the ideal nameless spot for themselves when the driver's patience also ran out. He said what the hell's the matter with you two? You kids better shape up and snap to and make up your mind pretty damn quick. This bus doesn't go on forever, you know.

The boy, who would never be backward again, wasn't about to be intimidated by a mere busdriver, but it so happened that at this precise moment they saw an unnamed place they both liked, a meadow with shade trees and fruit trees and a stream washing sunnily along between mossy banks.

There would not be any troublesome traffic either because several hundred yards ago the highway also had run out. In fact the bus had been having a rough go over the unspoiled earth. No wonder the driver was getting surly.

So they disembarked, not forgetting to take along the girl's handbag which contained a few items she thought she would need even here, and the boy's bedroll and rucksack of camping gear, which he swung enthusiastically down from the overhead rack.

The bus turned around lumberingly and roared away in an acrid huff of inefficiently burning fuel. But after the cool fresh breezes of the nameless place had chased away the last of the bus smell, the couple settled down to be themselves and enjoy each other and celebrate their escape.

Everyone will think that it didn't last.

It will be suspected at once that in the girl's handbag was a supply of an indispensable facecream called Sof-Karess, and when this ran out, she begged to be taken back to the place where things have proper names so she could go into a store she remembered the name of and ask the clerk for more Sof-Karess.

Or it will be imagined that after

the first joyful years and several babies, the couple tired of each other and quarreled and set up separate camps. So that the children, running to and fro between the camps, could tell one another and their parents where they were going, the settlements had to be named His and Hers.

It will be thought, in other words, that the girl and boy, being human, could not after all avoid either returning to what they were accustomed to, or bringing place names to their nameless place because the seeds of corruption were in themselves. For that's the way it always works in stories.

Unless it happens to be a story that proves the original rationale itself was a shuck. In which case it would turn out that one day the couple went for a walk and discovered, just on the other side of their unspoiled meadow, a highway with a string of towns called Aaronsburg, Absaraka, Acme Junction, and so on.

But none of this kind of thing happened. Not at all.

Instead, this devoted pair lived a richly satisfactory life, an ideal life. They had some lovely children. They stayed on their land and made whatever they needed with their own hands, though they found indeed that they required very little but each other and their own place.

Their only moments of anxiety came at rare intervals when they fancied they could hear distant rumblings and were afraid the gas tax money had piled up so relentlessly back where they'd come from that to get rid of it the highway department would be forced to extend the road into their nameless place, after which of course someone would have to name the place where the road led. Or when they imagined that some other person might have stumbled onto the same hypothesis the boy had worked out and would stay on the bus beyond the end of the line, making it necessary eventually to have two settlements named Ours and Theirs.

They needn't have given these possibilities a thought, however, for the bus never went that far out again.

A very funny story about the day the computer game took over at the Megalo Corporation . . .

Zorphwar!

by STAN DRYER

Megalo Network Message:
June 10, 1977
Source: P. T. Warrington, Headquarters, Los Gringos, California
Destination: W. S. Halson, Programming Services, Wrapping Falls, New York
Subject: Schedule Compliance in Programming Services

Bill, Old Buddy, I think you have problems. J. L. was down this morning bitching about your performance. The PERT printout indicates you have slipped schedule on Accounting Project 8723 by two months. In addition, your usage of central computer facilities is running 42 percent over budget. Remember that the Megalo Corporation is not in business for its health. Accounting is depending on Program 8723 to keep track of profitability in the entire Computer Products Division.

Megalo Network Message:
June 10, 1977
Source: W. S. Halson
Destination: P. T. Warrington
Subject: Schedule Compliance

Park, Old Buddy, when your message appeared on my display screen, I was just sitting down to send you an explanation of the apparent schedule slip and computer overruns in the Headquarters reports. What you see are computer-generated summaries of our progress, mere pieces of paper that do not represent the full situation. For example, nowhere in those reports is the well-being of our programmers evaluated. Now I can say without equivocation that our morale down here has never been higher. Absence due to personal illness has dropped twenty-seven percent over the last two months. There have been no "Bitch to the Top" submissions from my department in the last four months.

The cause of this high morale rests with one programmer in our department, Morris Hazeldorf, the inventor of Zorphwar. While I admit that his shaggy hair and unkempt personal attire might turn you off on first encounter, Morris is an extremely bright and able young man. Single-handed, he programmed the entire HAFAS (Hierarchical Accounting File Access System). And in his spare time over the past year, Morris has been creating Zorphwar, an exciting game that operates on our system.

To give you an idea of the creativity of this young man, I have arranged for Zorphwar to be made available to you on the Executive Interactive Display Terminal in your office. After you dial into the Computer Center, simply type "ZORPH" to gain access to the game.

Let me give you a quick rundown of this exciting interactive game. It is the year 2783. Man has reached out to settle thousands of planets scattered across the galaxy. Then, suddenly, the galaxy is invaded by a horde of alien beings, the Zorphs. They enslave all planets in their path. Those that resist are destroyed without mercy. You, as Captain of the Avenger, the great Terran warship, will range interstellar space, seeking out and destroying the forces of Zorph.

On your screen you will be given a display of your current sector of the galaxy and the stars in that sector. You may fire off laser probes to determine the location of Zorph warships. You have a number of weapons at your disposal including quantum rays, antimatter missiles and, for desperate situations, doomsday torpedoes. Your ship is protected by shields against any attack, but you must be careful to maintain your energy supply. Any Zorphs in your sector will attack you and each attack will use up some of your reserve energy. If your energy is depleted, your shields fail and the next Zorph attack destroys you. You can replenish your energy reserve by returning to a friendly base. You can hop sectors using hyperspace, although void storms may toss you about a bit in space and time. In addition, you will have to handle a variety of problems with your ship such as invasion by mind-warping beings, power-system failure, and occasional crew mutinies. The console commands that control your warship are simple and are given in the attached instructions being transmitted to your local printout facility.

Now do not get the idea that everyone here is simply sitting around playing Zorphwar. That is far from the case. While our schedules have slipped a bit in the last couple of months, morale is at an all-time high. With a crew of satis-

fied programmers, I feel there is nothing we cannot accomplish.

Finally, before you make any snap judgments, I ask that you log in on your console and try Zorphwar. Good hunting!

Megalo Network Message:
June 30, 1977
Source: P. T. Warrington
Destination: W. S. Halson
Subject: Promotion to Fleet Captain
Bill Buddy: As stated on Page 12 of the Zorphwar Handbook, any Captain completing six consecutive successful missions against the Zorphs is entitled to promotion to Fleet Captain. If you will check my War Record File, you will discover that I destroyed all Zorphs in the galaxy in the six games I played yesterday afternoon. Please send along whatever certificate you have to indicate my Fleet Captain status.

As for schedules, I have discussed the matter with J. L. and demonstrated Zorphwar to him. Both of us are in entire agreement with your analysis. Maintaining morale *is* one of our primary goals, and we are sure you have things under control. J. L. is, by the way, interested in access to Zorphwar on his own executive terminal. I trust that you will see to the necessary arrangements.

As for the exception reports triggered by your schedule slippage, J. L. has signed off on the necessary forms to justify a new schedule. We have doubled the expected times required to complete phases four through seven. While this stretches out the predicted completion for Project 8723 by two years, we feel that you people are doing important work in other areas and should not be forced to produce a program of use only to those uptight jokers in Accounting.

Now I must get back to Zorphwar. Twenty more successful missions, and I move up to Sector Commandant!

Megalo Network Message:
July 6, 1977
Source: W. S. Halson
Destination: P. T. Warrington
Subject: Enclosed Certificate
Congratulations, Fleet Captain! I am pleased to transmit to the facsimile printer in your area a copy of your certificate suitable for framing and wall display. Note that it is a fine example of computer-generated art, a project that a couple of my people have been working on for the last six months.

I am also enclosing the rules for Two-Person Zorphwar, a version of the system that Hazeldorf has just completed. Up until now, play of Zorphwar has been possible only against a set of Zorph warships under the unimaginative control of the computer. With the two-person game, one player commands the

Avenger while the other commands the Zorph fleet. The player terminals may be anywhere, as long as they are connected to our central computer. Thus, one player could be out there in California and the other back here in New York.

Megalo Network Message:
July 13, 1977
Source: P. T. Warrington
Destination: W. S. Halson
Subject: Doom of Warship Avenger
Earthling Swine! I, Parker, Emperor and Commander and Chief of the Hordes of Zorph, do here give warning. Tomorrow afternoon at 14:00 hours I shall commence the obliteration of all decadent humanoid pigs in my galaxy. Be at your console at the appointed hour! You are forewarned but foredoomed.

Megalo Network Message:
July 15, 1977
Source: W. S. Halson
Destination: P. T. Warrington
Subject: Zorphwar Exposure
Park Baby, I think we have a problem. That was a great game of Zorphwar we had yesterday, and I must commend you on how well you handled the forces of Zorph. It was a challenge all the way, and if I had not been on my toes, your final desperate tactic of launching all twelve thousand of your doomsday torpedoes would have destroyed me. However, when you made your attack, I was safely docked at a base star and thus protected by its powerful energy screens. Your attack succeeded only in wiping out the remnants of your own forces.

Unfortunately, launching twelve thousand torpedoes simultaneously put a serious overload on our computer system. Zorphwar runs at A-1 priority on our machine, which means that any other use of the machine is halted while Zorphwar computations are completed. As you may have noticed, it took approximately forty minutes for the machine to compute the paths through the galaxy of those torpedoes, to determine their impact points, and to calculate the radius of destruction of each burst. Normally such overloads are handled by adjusting the work load in the Computer Center. However, at three thirty yesterday, the Center was in the midst of printing the paychecks for the entire Computer Products Division. The little delay our game occasioned upset the very tight schedule for that operation. As a result, all checks from R through Z were not printed on time and failed to make the courier flight to the West Coast. That is the reason your paycheck was not delivered to you today. Regrettably, it is also the reason that Division President Talling and Corporation Comptroller Westland were not paid this week. While you are more

familiar than I am with the personalities at Headquarters, I suspect that both of these gentlemen like to receive their paychecks. I trust that, if any investigations come out of this little incident, you will do your best to emphasize the fact that the Zorphwar program has already been modified to permit the launching of no more than ten doomsday torpedoes in one attack. Thus, this particular problem can never occur again.

Megalo Network Message:
July 18, 1977
Source: P. T. Warrington
Destination: W. S. Halson
Subject: Zorphwar Development Schedule

Bill, Old Man: You were right as to the reaction of our President and Comptroller. The old stuff really hit the fan with about a dozen ad hoc task forces instantly created to investigate everything from general inefficiency down to the detailed operation of the Computer Center. Someone immediately spilled the beans about Zorphwar. (I suspect it was J. L., covering his ass.) Friday afternoon Westland came slamming into my office to ask about a thousand questions about our schedules and the cost of running Zorphwar. I tried to get him to try using the program, but he was too upset to listen to reason. He gave me one hour to produce a full report justifying the project and went storming back up to the executive wing. I'm afraid that your ass and mine would have been in the sling but for a stroke of incredible luck.

When Westland left, I headed for the men's room to down a couple of aspirin to steady my nerves. And who should I meet coming out of the door but Admiral Venerate. Venerate and I are old buddies, having been together on the Potlatch Investigation Team some eight years ago. At that time I proved there were no irregularities in the award of the Potlatch missile contract to Megalo. Venerate proved that the Navy had done nothing wrong. I was promoted to this staff position. Venerate moved up to Admiral.

"What brings you to the Megalo Corporation?" I asked him, trying to affect the nonchalance of a happy executive.

"I have just been given the ultimate garbage presentation," he said. "Your boys should know better than to try to snow me about naval-training games."

I smiled and spoke some platitudes about the vast technical expertise available at the Megalo Corporation and their ability to respond quickly to any technical challenge.

"Damn it," said the Admiral, "I don't want technical expertise. I want a working system."

The old light bulb went on inside my head. "You want a working system?" I said. "You follow me."

I led the Admiral into my office and fired up Zorphwar on the tube.

"Now before you play," I said, "you must understand that we did not wish it known we were working on a proposed naval system. Thus, we have pretended that we are fighting a space war of the future against the mythical race of Zorphs. The weapons you will be using will not have the standard Navy nomenclature, but you'll have no trouble recognizing what they really are."

"Smart thinking," said Venerate. "Now how do I get this game started?"

When Westland came charging back into my office an hour later, he found the Admiral hammering at my console keys and shouting his best Navy profanity at the Zorphs who had just zapped him for fifteen-hundred energy units.

"You are witnessing a demonstration of the Zorphwar Naval Battle Simulation System," I said to Westland. "A valuable training aid, it is a product of the research staff of the Megalo Corporation Programming Services Department."

Westland stood there with his lower jaw down around his ankles watching Venerate polish off the last of the Zorph fleet. The Admiral turned around grinning like a child of ten who has found a pony under the Christmas tree. "That is what I call action!" he cried.

He turned to Westland. "How come you dunderheads didn't show me this right off?" he demanded.

By now, I am sure, the Naval Support Bid Team has descended upon Programming Services to begin costing out the proposal for a production version of Zorphwar. They are talking about a system with one hundred terminals running on two Megalo 861's for starters. Eventually they may order a dozen 861's. Everyone here in headquarters is too excited about the prospect of selling that kind of hardware to worry about why the program was written in the first place.

Megalo Network Message:
August 26, 1977
Source: W. S. Halson
Destination: P. T. Warrington
Subject: Zorphwar Contract
Park, Old Friend: I just want to bring you up to date on the Zorphwar contract. The team of programmers and technical writers is in place. The schedule for putting together a production package is a bit tight, considering that the only documentation available from Hazeldorf was a picture of a Zorph he had sketched on the back of an envelope.

Speaking of Hazeldorf, I was a little disappointed in his reaction to the project. When I explained to him what this contract would mean to the Megalo Corporation and how I expected him to assume a leadership role in the production of the final package, he simply shook his head and said, "The Zorphs aren't going to like this." I hope the kid isn't going flaky on us.

Megalo Network Message:
September 21, 1977
Source: P. T. Warrington
Destination: W. S. Halson
Subject: Zorphwar Contract
Bill, Old Buddy: I hate to bring this up, but J. L. was down this morning to say that there have been no reports on the progress of the Zorphwar project from you people. Please get the necessary input into the computer as quickly as possible so we can start tracking this vital project. I hope that this omission on your part does not mean that schedules are slipping down there.

Zorph Commonwealth Network
Message: Celestial Date 7654-55
Source: Central Computing Message Processing
Destination: P. T. Warrington
Tribute Station 756
Subject: Admission to Commonwealth of Zorph

His Imperial Majesty, Ruler of Zorphdom and the Greater Galaxy, The Middle Claw of Justice in the Universe, Benefactor of all Sentient Beings, does hereby proclaim that your planet, Solus III, has been admitted to the Commonwealth of Zorph as a Status V member. As a member in this privileged class, you will be expected to pay tribute in measure of your standing. The requisite payment for your Corporation is twelve ingots of gold of 100-kilogram weight per week. These should be placed on the roof of the Megalo Corporation Headquarters for pickup by Zorph shuttle craft. Failure to comply with this order will result in immediate penalties, including criminal trials of your leaders. Address all subsequent messages to Message Central for relay to the Zorph commandship assigned to your sector.

Megalo Network Message:
September 22, 1977
Source: P. T. Warrington
Destination: W. S. Halson
Subject: Attempts at Humor
Bill, this is definitely not the time for jokes. Something has gone wrong with the Megalo Banking Network, a program bug that appears to have taken roughly ten percent out of every account in the six major banks on the system. The funds have been transferred to some unknown account. This place is, needless to say, Panic City, with vice-presidents screaming for ac-

tion all over the place.

Fortunately, I intercepted your little jest before anyone else saw it. Now forget the fun and games and get that data into the computer pronto.

Zorph Commonwealth Network
Message: Celestial Date 7654-57
Source: Central Computing Message Processing
Destination: P. T. Warrington
Message sent represents an invalid communication and has not been dispatched to addressee. Please respond immediately to Central Processing with date and time of initial tribute delivery.

Date: September 23, 1977
From: P. T. Warrington
To: W. S. Halson
Subject: Problems with Communications Network

I am sending this message by mail as there seems to be something wrong with the Megalo telephone system and the message network is all fouled up. Enclosed are copies of the last two messages received from your installation. I shall assume that your screwball friend Hazeldorf has gotten into the guts of the message-switching system and reprogrammed it to produce these messages as a practical joke. If this is the case, correct the situation immediately and dismiss Hazeldorf. Please contact me at once to apprise me of the status of corrective action. I assume that you are still in charge down there and that all of this is merely some kind of poor-taste humor.

It *is* all a joke, isn't it?

Coming soon

Next month: "The Land of Sorrow" by Phyllis Eisenstein, a new story in the popular series about Alaric, a teleporting minstrel.

Soon: Our October 28th anniversary issue, with new stories by James Tiptree, Jr., Samuel R. Delany, Robert Bloch, Michael Bishop, Zenna Henderson, Manly Wade Wellman, Clifford Simak and others.

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John Brunner, in his first appearance in F&SF in some time, offers an unusual story about the ultimate gourmet dish, a food so delicious that it is quite literally frightening.

The Taste Of The Dish And The Savor Of The Day

by JOHN BRUNNER

The Baron's circumstances had altered since our only previous encounter a year ago. This I was prepared for. His conversation at that time had made it abundantly clear that he had, as the charmingly archaic phrase goes, "expectations."

I was by no means sure they would materialize .... Still, even though I half suspected him of being a confidence trickster, that hadn't stopped me from taking a considerable liking to him. After all, being a novelist makes me a professional liar myself, in a certain sense.

So, finding myself obliged to visit my publishers in Paris, I dropped a note to what turned out to be an address the Baron had left. He answered anyway, in somewhat flowery fashion, saying how extremely pleased he would be were I to dine with him *tete-a-tete* at home — home now being an apartment in an expensive block only a few minutes from what Parisians still impenitently call *l'Etoile*. I was as much delighted as surprised; for him to have moved to such a location implied that there had indeed been substance in his former claims.

Yet from the moment of my arrival I was haunted by a sense of incongruity.

I was admitted by a manservant who ushered me into a *salon*, cleanly but plainly decorated, and furnished in a style neither fashionable nor *demode*, but nonetheless entirely out of keeping, consisting mainly of the sort of chairs you see at a pavement cafe, with a couple of tables to match and a pair of cane-and-wicker armchairs. The impression was of a collection put together in the thirties by a newly married couple down on their luck, who had hoped to replace everything by stages and found they

couldn't afford to after having children.

I was still surveying the room when the Baron himself entered, and his appearance added to my feeling of unease. He greeted me with a restrained version of his old effusiveness; he settled me solicitously in one of the armchairs — it creaked abominably! — and turned to pour me an *aperitif*. I took the chance of observing him in detail. And noticed ....

For example, that although it was clean and crisply pressed and was of excellent quality, the suit he had on this evening was one I remembered from a year ago — then trespassing on, now drifting over, the verge of shabbiness. His shoes were to match: brilliantly polished, yet discernibly wrinkled. In general, indeed, so far as his appearance was concerned, whatever he could attend to for himself — as his manicure, his shave, the set of his tie knot — was without a flaw. But his haircut, it immediately struck me, was scarcely the masterpiece of France's finest barber.

Nor was his manner of a piece with what I would have predicted. I recalled him as voluble, concerned to create a memorable impact; in place of that warmth which, affected or not, had made him an agreeable companion, there was a stiltedness, a sense of going through formally prescribed routines.

He gave the impression of being ... how shall I define it? Out of focus!

Furthermore, the *aperitif* he handed me was unworthy of his old aspirations: nothing but a commonplace vermouth with a chip of a tired lemon dropped into it as by afterthought. For himself he took only a little Vichy water.

Astonished that someone who, whatever his other attributes, was indisputably a *gourmet*, should thus deny himself, I was about to inquire why he was so abstemious. Then it occurred to me that he must have had bad news from his doctor. Or, on reflection (which took half a second), might wish me to believe so. I was much more prepared now than I had been a year ago to accept that he was a genuine hereditary baron. However, even if one is a scion of a family that lost its worldly goods apart from a miserly pittance in the Events of 1789, one can still be a con man. There is no incompatibility between those roles any more than there is between being an author and being a sucker. So I forbore to comment and was unable to decide whether or not a shadow of disappointment crossed his face.

By the time when I declined a second helping of that indifferent

vermouth, I might well have been in the mood to regret my decision to recontact the Baron and have decided to limit my visit to the minimum consistent with politeness, but for an aroma which had gradually begun to permeate the air a few minutes after I sat down. It was inexpressibly delectable and savory, setting my taste buds to tingle *a l'avance*. Perhaps everything was going to be for the best after all. A dinner which broadcast such olfactory harbingers was bound to be worthwhile!

Except that when we actually went to table, it wasn't.

At my own place I found a sort of symbolic gesture in the direction of an *hors d'oeuvres*: a limp leaf of lettuce, a lump of cucumber, a soft tomato, and some grated carrot that had seen better days before it met the *mandoline*, over which a bit of salt and oil had been sprinkled. To accompany this mini-feast I was given a dose of dry white *ordinaire* from a bottle without a label. Before the Baron, though, the servant set no food, only pouring for him more Vichy water which he sipped at in a distracted manner while his eyes followed my glass on its way to my lips and the discovery that such a wine would have shamed a *restaurant des routiers sans panneau*. His face was pitiable. He looked envious!

Of rabbit food and immature vinegar?

I was so confused, I could not comment. I made what inroads I could on the plate before me, trying to preserve at least a polite expression on my own face. And thinking about the servant. Had I not seen the fellow elsewhere?

As he answered the door to me, I'd scarcely glanced at him. Now, when he came to check whether I'd finished with my first course — I yielded it with relief — I was able to take a longer, though still covert, look. And concluded: yes, I had seen him.

Moreover I recalled when and where. During my last trip to France, in Guex-sur-Saone where they had held that year's French National Science Fiction Congress — and incidentally where I had met the Baron — and, what is more, he had been in the same car as the Baron.

But a year ago he could not possibly have afforded a manservant! He had not even been able to afford his bill at the Restaurant du Tertre to which he had recommended, and accompanied, me and my wife and the friends we were with; he still owed me an embarrassing trifle of seven francs eighty which I was not proposing to mention again if he did not, because the meal had been an incredibly good value.

The incongruities here began at last to form a pattern in my mind. Had he received the benefit of his "expectations" and then let silly pride tempt him into an extravagance he now regretted? Was it because, thinking a servant appropriate to his new station in life, he had hired one, that he still wore the same suit and couldn't afford to have his hair properly barbered? Was it economy rather than health that drove him to refrain from even such poor refreshment as a guest was offered in this apartment which, though in a smart *quartier*, either was furnished out of a flea market or hadn't been refurnished since what one buys at flea markets was last in style?

Hmm ...!

The interior of the head of a professional writer is a little like a mirror-maze and a little like a haunted house. From the most trivial impetus, the mind inside can find countless unpredictable directions in which to jump. While I was waiting for the main course to be brought in, mine took off towards the past and reviewed key details of our meeting in Guex.

Of all the science fiction events I have attended — and in the course of twenty-five years there have been not a few — that one was the most chaotic it has been my misfortune to participate in. The organizers chose a date already pre-empted by a reunion of *anciens combattants de la Resistance*, so that all the hotels in the center of town were full and we had been farmed out to somewhere miles away. It was, I suppose, entirely in keeping with the rest of the arrangements that on the last evening of the congress we should find ourselves, and the only other English people present — the guest of honor, his wife, and their baby — abandoned in front of the cinema where the congress was being held because the committee and anyone else who was *au fait* had piled into cars and gone into the country for dinner. So many people had turned up for the reunion of the Resistance, there wasn't a restaurant in walking distance with a vacant table.

Hungry and stranded, we made the acquaintance of the Baron: a youngish man — I'd have said thirty-two and prematurely world-weary — lean, with a certain old-fashioned elegance, and out of place. I'd exchanged a word or two with him earlier in the day, when he'd chanced on me standing about, as usual, waiting for one of the organizers to put in an appearance so I could find out what was happening, and asked me whether a member of the public might attend the movie then showing, since he had a few hours

to kill. Seemingly he had enjoyed the picture, for he had stayed over or come back for another.

Emerging now, drawing on unseasonable gloves with an air of distraction as though he were vaguely put out by the absence of a coachman to convey him to his next destination, he spotted and remembered me and approached with a flourish of his hat to thank me for the trivial service I'd performed.

My answer was doubtless a curt one. Sensing something amiss, he inquired whether he might in turn be of assistance. We explained ... choosing, of course, terms less than libelous, though we were inclined to use strong language.

Ah! Well, if we would accept a suggestion from someone who was almost as much a stranger as ourselves ...? (We would.) And did we have transportation? (We did, although my car was at the hotel twenty minutes' walk away.) In that case, we might be interested to know that he had been informed of a certain restaurant, not widely advertised, in a village a few kilometers distant, and had wondered whether during his brief stay in Guex he might sample its cuisine. He had precise directions for finding it. It was reputed to offer outstanding value. Were we ...?

We were. And somehow managed to cram into my car and not die of suffocation on the way; it's theoretically designed for four, but no more than three can be comfortable. Still, we got there.

The evening proved to be an education — on two distinct levels.

I found myself instantly compelled to admire the deftness with which our chance acquaintance inserted data about himself into a discussion about an entirely different subject. Even before I came back with the car, the others had learned about his aristocratic background; I noticed he was already being addressed as *Monsieur le Baron*. His technique was superb! Always on the *qui vive* for new tricks that might enable me to condense the detail a reader needs to know into a form which doesn't slow down the story, I paid fascinated attention. Almost without our noticing that he was monopolizing the conversation, we were told about his lineage, his ancestors' sufferings at the rude hands of the mob, the death of the elderly aunt for whose funeral he had come to Guex, a lady of remarkable age whose existence he had been ignorant of until a lawyer wrote and advised him he might benefit under her will .... (The French are far less coy about discussing bequests than are we Anglophones.)

But on the other and much more impressive hand, within — I

swear ? five minutes of our being seated in the restaurant, the word had got around behind the scenes that someone of *grand standing* was present tonight. In turn the waiter ? it was too small a restaurant to boast a headwaiter ? and the *sommelier* and the *chef* and finally the proprietor put in their successive appearances at our table as *M. le Baron* proceeded with the composition of our meal. He laid down that there should not be an excess of fennel with the trout, and that the Vouvray should be cellar-cool and served in chilled glasses but on no account iced, which would incarcerate its "nose" and prevent it from competing with the fennel (he was right); that with the subsequent *escalope de veau Marengo* one should not drink the Sancerre, of which the *patron* was so proud, but a Sain-Pourcain only two years old (he was right about that too), just so long as the *saucier* did not add more than a splash — what he actually said was *une goutte goutteuse*, a phrase that stuck in my mind because it literally means "a drop with the gout" — of wine-vinegar to the salad dressing. And so on.

I was not the only one to be impressed. When we had finished our dessert, the owner sent us a complimentary glass apiece of a local liqueur scented with violets, wild strawberries, and something called *reine de bois*, which I later discovered to be woodruff. It was so delicious, we asked where else it could be got, and were told regretfully that it was not generally available, being compounded to a secret recipe dating back two centuries or more. Well, one meets that kind of thing quite frequently in France ....

Let me draw a veil over the arrival of the bill, except to mention that after my eyes and the Baron's had met and I'd summed up the situation, I let an extra fifty-franc note rest for a moment on the table. The dexterity with which it became forty-two francs twenty reminded me of the skill of a cardsharp. I don't think even the waiter noticed.

Well, he was after all in Guex on the sort of business that doesn't conduce to commonsensical precautions; attending a funeral, I wouldn't think to line my billfold with a wad of spare cash against the chance of going out to dinner with a group of foreign strangers. I let the matter ride. The meal had been superb and worth far more than we were being charged.

Whether for that reason, though, or because he had found out he was in the company of two writers, or simply because the wines and the liqueur had made him garrulous, he appended to the information he had earlier impart-

ed a few more precise details. His elderly aunt had possessed a *chateau* nearby (not a castle — the word corresponds quite exactly to the English term "manor house" and needs not necessarily have turrets and a moat), and although the lawyers were still wrangling, it did seem he must be the closest of her surviving relatives. So he might just, with luck, look forward to inheriting a country seat in keeping with his patent — patent of nobility, that is, a term I'd previously run across only in history books.

By then we were all very mellow, and so we toasted his chances in another round of that exquisite liqueur. After which we drove back to Guex.

Carefully.

Arriving at his hotel, we said good-by in a flurry of alcoholic *bonhomie*, exchanging names and addresses though I don't think we honestly imagined we would meet again, for tomorrow was the last day of the congress, and the Baron had said that directly after the funeral — scheduled for the morning — he was obliged to return to Paris.

But we did in fact cross paths next day. As we were emerging from the cinema after the closing ceremony of the congress, a large black limousine passed, which unmistakably belonged to a firm of undertakers. It stopped and backed up, and from its window the Baron called a greeting. With him were three other passengers, all men.

And although I'd only seen him for as long as it took me and my wife to shake hands with the Baron and confirm our intention of getting in touch again one day, I was certain that one of them was the same who now was bringing in a cart from the kitchen, on which reposed a dish whose lid when lifted freed into the air the concentrated version of the odor I had already detected in diluted form.

I was instantly detached from the here and now. I had to close my eyes. Never have my nostrils been assailed by so delectable a scent! My mouth watered until I might have drowned in saliva but that all my glands — the very cells of my body! — wanted to experience the aroma and declined to be insulated against it.

When I recovered, more at a loss than ever, I found that something brown and nondescript-looking had been dumped on my plate, which was chipped; that a half-full glass of red wine as sour as the white had been set alongside, while the Baron's water glass had been topped up; and that he was eating busily.

Busily?

This was not the person I had

met last year. That version of the Baron not only cared about but loved his food — paid deliberate and sensitive attention to every mouthfull of any dish that warranted it. Now he was shoveling the stuff up, apparently determined to clear his plate in record time. And that was absurd. For, as I discovered when I sampled my unprepossessing dollop of what's-it, its flavor matched its aroma. I had taken only a small forkful; nonetheless, as I rolled it across my tongue, choirs sang and flowers burst into bloom and new stars shone in the heavens. I simply did not believe what I was eating.

In the upshot I was reluctant even to swallow that first morsel. I had never dreamed it was possible to create in the modern world a counterpart of ambrosia, the food of the gods. I was afraid to let it slide down my throat for fear the second taste might fall short of the first.

When I did finally get it down in a sort of belated convulsion, I found that the Baron had cleared his plate and was regarding me with a strange expression.

"Ah, you must be enjoying it," he said.

Even as I sought words to express my delight, I could feel a tingling warmth moving down me — down not so much in the gravitational as in the evolutionary sense, to lower and lower levels of being, so that instead of just registering on palate and tastebuds and olfactory nerves this stuff, this stew, seemed to be transfusing energy directly into my entire system.

But I did not say so. For I could suddenly read on my host's face what I could also hear unmistakably in his tone of voice: such hopelessness as Mephistopheles might know, something which would be to despair as starvation is to appetite. He spoke as a man who, after long and bitter experience, now knew he would never again enjoy anything.

The tissues of my body were crying out for that miraculous incredible food. I fought and thought for half eternity except that in retrospect I judge it to have been seconds.

And pushed away my plate.

I doubt I shall match that act of will until my dying day. But it was my turn to rise to the occasion, as he had done for stranded foreigners at Guex, and trust to being helped over the consequences.

He stared at me. "Is it possible," he inquired, "that in fact you do not like it?"

"*Mais si!*" I cried. "I do! But ...." It came to me without warning what I ought to say. "But it's the only food I've tasted in my life

which is so delicious that it frightens me."

In one of his books William Burroughs hypothesizes a drug to which a person would become addicted after a single dose. I had perhaps had that remark vaguely at the back of my mind. Without having read it, possibly I might not have — Ah, but I had, and I did.

There was a frozen pause. Then a smile spread over the Baron's face so revolutionizing in its effect that it was like the spring thaw overtaking an arctic landscape.

"I knew I was right," he said. "I knew! If anyone could understand, it must be an artist of some kind — an author, a poet .... We shall withdraw so that you may smoke a cigar, and I shall instruct Gregoire to bring something to make good the deficiencies of this repast."

He clapped his hands. The servant entered promptly, and stopped dead on seeing my plate practically as full as when he had handed it to me.

"Your dish does not meet with the approval of my guest," the Baron said. "Remove it. Bring fruit and nuts to the *salon.*"

Pushing back my chair, anxious to leave the room, I found the fellow glaring at me. And took stock of him properly for the first time. I cannot say he was ill-favored; he was of a type one might pass by the thousand on the streets of any city in France. But, as though he had been insulted to his very marrow by my unwillingness to eat what he had prepared, he was regarding me with indescribable malevolence. For a heartbeat or two I could have believed in the Evil Eye.

How had the Baron, a person of taste, hit on this clown for his "gentleman's gentleman"? Was this some hanger-on of his aunt's, tied to him as a condition of her will?

Well, doubtless I should be enlightened soon enough. The time for speculation was over.

As soon as he had recalled Gregoire to his duties, which were sullenly undertaken, the Baron escorted me into the *salon* and from a corner cupboard produced a bottle I thought I recognized. Noticing that I was staring at it, he turned it so that I could read the label. Yes, indeed; it did say *Le Digestif du Tertre.* When he drew the cork and poured me some, I acknowledged the aroma of violets and strawberries and woodruff like an old friend.

The bottle was full; in fact I doubt it had been previously opened. Yet the Baron poured none for himself. Now I could brace myself to ask why.

He answered with the greatest possible obliquity.

"Because," he said, "Gregoire is more than two hundred years old."

I must have looked like a figure in a cartoon film. I had a cigar in one hand and a burning match in the other, and my mouth fell ajar in disbelief and stayed that way until the flame scorched me back to life. Cursing, I disposed of the charred stick and licked my finger.

And was at long last able to say, "*What?*"

"To be precise," the Baron amplified, "he was born in the year the American Revolution broke out, and by the time the French Revolution was launched in imitation of it he was already a turnspit and apprentice *saucier* in the kitchens of my late aunt's *chateau* near Guex ... which did turn out to devolve on me as her closest surviving relative, but which unfortunately was not accompanied by funds which would have permitted the repair of its neglected fabric. A shame! I found it necessary to realize its value in ready money, and the sum was dismayingly small after the *sacre* lawyer took his share. I said, by the way, my aunt. This is something of a misnomer. According to incontrovertible proofs shown to me by Gregoire, she was my great-aunt at least eleven times over."

I had just had time to visualize a sort of slantwise genealogical tree in which aunts and uncles turned out to be much younger than any of their nephews and nieces, when he corrected himself.

"By that I mean she was my eleven-times-great aunt. Sister of an ancestor on my father's mother's side who was abridged by the guillotine during the Terror, for no fouler crime than having managed his estates better than most of his neighbors and occasionally saved a bit of cash in consequence."

Having made those dogmatic statements, he fixed me with an unwavering gaze and awaited my response.

Was I in two minds? No, I was in half a dozen. Out of all the assumptions facing me, the simplest was that the Baron — whom I'd suspected of setting me up for a confidence trick — had himself been brilliantly conned.

Only ....

By whom? By Gregoire? But in that case he would have carried on with the act when I refused to finish my meal, not scowled as though he wished me to drop dead.

And in addition there was the matter of the food itself. I was having to struggle, even after one brief taste, against the urge to run back and take more, especially since its seductive aroma still permeated the air.

My uncertainty showed on my

face. The Baron said, "I can tell that you are not convinced. But I will not weary you by detailing the evidence which has persuaded me. I will not even ask you to credit the argument I put forward — I shall be content if you treat it as one of your fantastic fictions and merely judge whether the plot can be resolved on a happy ending ... for I swear *I* can't see such an outcome. But already you have proof, do you not? Consult the cells of your body. Are they not reproaching you for eating so little of what was offered?"

Gregoire entered, favoring me with another savage glare, deposited a bowl containing a couple of oranges and some walnuts more or less within reach of me, and went out again. This gave me a chance to bring my chaotic mind under control.

As the door shut, I managed to say, "Who — who invented it?"

The Baron almost crowed with relief, but the sweat pearling on his face indicated how afraid he had been that I would mock him.

"Gregoire's father did," he answered. "A failed alchemist who was driven to accept a post in the kitchens of my family home and there continued his experiments while becoming a renowned *chef*. From Gregoire, though he is a person exceedingly difficult to talk to, I have the impression that his employers believed him to be compounding the Philosophers' Stone and hoped, I imagine, that one day they might find themselves eating off plates of gold that yesterday were pewter .... But he was in fact obsessed with the Elixir of Life, which, I confess, has always struck me as being by far the most possible of the alchemical goals. Doubtless the succession of delectable dishes which issued from his kitchen and were in part answerable for the decline in my ancestors' fortunes, for such was their fame that the king himself, and many of his relatives and courtiers, used to invite themselves for long stays at our *chateau*, despite the cramped accommodation it had to offer .... I digress; forgive me.

"As I was about to say, those marvelous dishes were each a step along the path towards his supreme achievement. Ironically, for himself it was too late. Earlier he had been misled into believing that mercury was a sovereign cure for old age, and his frame was so ravaged by ill-judged experiments with it that when he did finally hit on the ideal combination he could only witness its effects on his son, not benefit in person.

"He left his collection of recipes to his son, having previously taught the boy to cook the perfected version by means of such repeated beatings that the child could, and I

suspect sometimes did, mix the stuff while half asleep.

"But, possibly because of the mercury poisoning which had made him 'mad as a hatter,' to cite that very apt English phrase, Gregoire *pere* overlooked a key point. He omitted to teach the boy how to read and write.

"Finding that his sole bequest from his father was a satchel full of papers, he consulted the only member of the family who had been kind to him: a spinster lady, sister of the then Baron. She did know how to read."

"This is supposed to be the lady you buried just under a year ago?" I demanded.

He gave me a cool look of reproach. "Permit me to lay all before you and reserve your comments...?"

I sighed and nodded and leaned back in my uncomfortable, noisy chair.

"But you are, as it happens, correct," he admitted when he had retrieved the thread of his narrative.

"I cannot show you the satchel I alluded to. Gregoire is keenly aware of its value, though I often suspect he is aware of little else outside his daily cycle from one meal to another. Only because it must have dawned on his loutish brain that he would have to make some adjustment following the death of my — my *aunt*, did he force himself to part with it long enough for me and her lawyer to examine the contents.

"We found inside nearly eighty sheets of paper and five of parchment, all in the same crabbed hand, with what I later established to be a great use of alchemical jargon and an improbably archaic turn of phrase — seventeenth rather than eighteenth century, say the experts I've consulted. How did I get the documents into the hands of experts?

"Well, the lawyer — who is a fool — showed little or no interest in them. He disliked my aunt as you would expect a bigoted peasant to do, inasmuch as since time immemorial it had been known in the district that she lived alone except for a male companion and never put in an appearance at church. Moreover he was furious at having found that in the estate there was only a fraction of the profit he had looked forward to.

"However, he does possess a photocopier and before Gregoire's terror overcame him to the point of insisting on being given back all his precious papers, I had contrived to feed six or seven of them through the machine. If you're equipped to judge them, I can show them to you. I warn you, though: the language is impenetrably ancient and technical. Have you wondered

why my inheritance has not improved my *facon de vivre*? It is upon the attempt to resolve the dilemma posed by Gregoire's patrimony that I've expended what meager income my portion yields. New clothes, new furniture — such trivia can wait, for if what I believe to be true is true I shall later on have all the time imaginable to make good these transient deficiencies!"

He spoke in the unmistakable tone of someone trying to reassure himself. As much to provide a distraction which would help me not to think about that strange food as for my less selfish reason, I said, "How did Gregoire get his claws into you?"

He laid his finger across his lips with reflex speed. "Do not say such things! Gregoire is the sole repository of a secret which, had it been noised abroad, would have been the downfall of empires!"

Which told me one thing I wanted to know: among the half-dozen papers the Baron had contrived to copy there was *not* the recipe of the dish served to us tonight.

"But your aunt is dead," I countered.

"After more than two hundred years! And I'm convinced she expired thanks to industrial pollution — poisonous organic compounds, heavy metals, disgusting effluents ruining what would otherwise be wholesome foodstuffs ...."

But his voice tailed away. While he was speaking I had reached for the nuts, cracked one against another in my palm, and was sampling the flesh. There was nothing memorable about this particular nut, but it was perfectly good, and I found I could savor it. Moreover I could enjoy the rich smoke of my cigar. I made it obvious I was doing so — cruelly, perhaps, from the Baron's point of view, for his eyes hung on my every movement and he kept biting his lower lip. Something, though, made me feel that my behavior was therapeutic for him. I rubbed salt in the wound by topping up my glass of liqueur without asking permission.

"And in what manner," I inquired, "did your aunt spend her two centuries of existence? Waiting out a daily cycle from one meal to the next, always of the same food, as you've said Gregoire does?"

The Baron slumped.

"I suppose so," he admitted. "At first, with that delirious sensation on one's palate, one thinks, 'Ah, this is the supreme food, which will never cloy!' After the hundredth day, after the two hundredth ... Well, you have seen.

"You asked how Gregoire snared me. It was simple — simple

enough for his dull wits to work out a method! How could I decline to share a conveyance, *en route* to and from the funeral, with my late aunt's sole loyal retainer? How could I decline to agree when, in the hearing of her lawyer and his *hussier,* he offered to cook me her favorite meal if I would provide him with the cost of the ingredients? The sum was — well, let me say substantial. Luckily the lawyer, upon whom may there be defecation, was willing to part with a few *sous* as an advance against my inheritance.

"And what he gave me was the dish you sampled tonight. With neither garnishing nor salad nor .... Nothing! He has never learned to cook anything else, for his father's orders were explicit: eat this alone, and drink spring water. But he caught me at my most vulnerable moment. Overwhelmed by the subtlety of the dish, its richness, its fragrance, its ability to arouse appetite even in a person who, like myself at that time, is given over to the most melancholy reflections, I was netted like a pigeon."

In horrified disbelief I said, "For almost a year you have eaten this same dish over and over, without even a choice of wines to set it off? Without dessert? Without *anything*?"

"But it does work!" he cried. "The longevity of my aunt is evidence! Even though during the Nazi occupation it was hard to find certain important spices, she — Wait! Perhaps it wasn't modern pollution that hastened her end. Perhaps it was lack of those special ingredients while the *sales Boches* were overrunning our beloved country. Perhaps Gregoire kept them back for himself, cheated the helpless old lady who had been the only one to help him when he was orphaned!"

"And kept her elixir to herself, content to watch her brother die, and his wife, and their children and the rest of the family, in the hope of inheriting the lot, which she eventually did. And she then spent her fortune on the food because only Gregoire could tell her how much it was going to cost to buy the necessary ingredients."

The Baron gaped at me. "You talk as if this is all common knowledge," he whispered. I made a dismissive gesture.

"If the recipe works, what other reason can there be for the fact that the rest of her generation aren't still among us?"

"Under the Directory —" he parried.

"If they'd known they had a chance of immortality, it would have made sense for them to realize their assets and bribe their way to safety. You said just now that you

will have unimaginable time before you if what you think is actually true. Why didn't the same thought occur to your forebears? Because this old bitch kept the news from them — correct?"

The corners of his mouth turned down. "Truly, life can do no more than imitate art. I invited you to treat this like a plot for a story, and thus far I cannot fault your logic."

"Despite which you plan to imitate someone who shamed not only your family name but indeed her nation and her species?" I crushed my cigar into the nearest ashtray and gulped the rest of my liqueur. "I am appalled! I am revolted! The gastronomic masters of the ages have performed something approaching a miracle. They've transformed what to savages is mere refueling into a series of splendid compositions akin to works of art, akin to symphonies, to landscapes, to statues! To leaf through a book like *Larousse Gastronomique* is to find the civilized counterpart of Homer and Vergil — a paean to the heroes who instead of curtailing life amplified it!"

"I think the same —" he began. I cut him short.

"You used to think so, of which I'm well aware. Now you cannot! Now, by your own decision, you've been reduced to the plight of a prisoner who has to coax and wheedle his jailer before he gets even his daily ration of slop. If a single year has done this to you, what will ten years do, or fifty, or a hundred? What use are you going to make of your oversize life-span? Do you have plans to reform the world? How appropriate will they be when for decades your mind has been clouded by one solitary obsession?"

I saw he was wavering, and I rammed home my advantage.

"And think what you'll be giving up — what you have given up already, on the say-so of a half-moronic turnspit so dull-witted his father couldn't teach him to read! This liqueur, for a start!" I helped myself to more again and in exaggerated pantomime relished another swig. "Oh, how it brings back that delectable *truite flambee au fenouil* which preceded it, and the marvelous veal, and that salad which on your instructions was dressed as lightly as dewfall ...."

I am not what they call in French *croyant*. But if there are such things as souls and hells, I think maybe that night I saved one of the former from the latter.

Given my lead, lent reassurance by the way I could see envy gathering in the Baron's face, I waxed lyrical about — making a random choice — oysters *Bercy* and

moules en brochette and lobster *a l'armoricaine*, invoking some proper wines to correspond. I enthused over quail and partridge and grouse, and from the air I conjured vegetables to serve with them, artichokes and cardoons and salsify and other wonders that the soil affords. These I dressed with sauces so delightfully seasoned I could have sworn their perfume was in the room. I did not, of course, forget that supreme miracle, the truffle, nor did I neglect the crepe or the *faux mousseron* or the beefsteak mushroom, which is nothing like a steak but gave me *entree*, as it were, to the main course.

Whereupon I became ecstatic. Roasts and grills, and pies and casseroles and pasties, were succeeded by a roll call of those cheeses which make walking through a French street market like entering Aladdin's cave. Then I reviewed fruits of all sizes, shapes, colors, flavors: plums and pomegranates, quinces and medlars, pineapples and nectarines. Then I briefly touched on a few desserts, like *profiteroles* and *crepes* and *tarte alsacienne* ....

I was poised to start all over again at the beginning if I must; I had scarcely scraped the surface of even French *cuisine*, and beyond Europe lay China and the Indies and a whole wide world of fabulous fare. But I forbore. I saw suddenly that one shiny drop on the Baron's cheek was not perspiration after all. It was a tear.

Falling silent, I waited.

At length the Baron rose with the air of a man going to face the firing squad. Stiffly, he selected a glass for himself from the tray beside the liqueur bottle, poured himself a slug, and turned to face me, making a half bow.

"*Mon ami*," he said with great formality, "I am forever in your debt. Or at any rate, for the duration of my — my *natural* life."

I was afraid he was going to take the drink like medicine, or poison. But instead he checked as he raised it to his lips, inhaled, gave an approving nod, closed his eyes and let a little of it roll around his tongue, smiling.

It was more like it!

He took a second and more generous swig and resumed his chair.

"That is," he murmured, "a considerable relief. I can after all now appreciate this. I had wondered whether my sense of taste might prove to be negated — whether the food I have subsisted on might entail addiction .... The latter possibility no doubt remains; however, when all else fails there is always the treatment called *le dindon froid*."

Or, as they say in English, cold

turkey .... Whatever his other faults, I realized, one could not call the Baron a coward.

"*Ach!*" he went on. "In principle I knew all you have told me months ago. You are right in so many ways, I'm embarrassed by your perspicuity. Am I the person to reform the world? I, whom they have encouraged since childhood to believe that the world's primary function is to provide me with a living regardless of whether or not I have worked to earn it? Sometimes I've been amused to the point of laughing aloud by the silliness of my ambition. And yet — and yet ....

"*Figurez-vous, mon vieux* what it is like always to have a voice saying in your head, 'Suppose this time the dish that sustained your aunt two hundred years can be developed into the vehicle of true immortality?' There's no denying that it's a wonderful hybrid between *cuisine* and medicine."

That I was obliged to grant.

"So, you see, I'm stuck with an appalling moral dilemma," the Baron said. He emptied his glass and set it aside. "It occurs to me," he interpolated, "that I may just have incurred a second one — perhaps infringing Gregoire's father's injunction about eating nothing except his food constitutes a form of suicide? But luckily I feel better for it, so the riddle can be postponed .... Where was I? Oh, yes, my dilemma. If I break my compact with Gregoire, what's to become of him? If there is no employer to provide him with the funds he needs to buy his ingredients and the kitchen and the pans and stove to cook them, will he die? Or will he be driven like a junkie to robbery and possibly murder? *Mon brave, mon ami*, what the hell am I to do about Gregoire?"

It was as though my panegyric on gastronomy had drained my resources of both speech and enthusiasm. Perhaps more of the liqueur would restore them; I took some.

"By the way," the Baron said, copying me, "an amusing coincidence! While I was still in Guex-sur-Saone, I recalled .... Are you all right?"

"I — I think so. Yes," I said.

For a moment I'd been overcome by an irresoluble though fortunately transient problem. I was thinking over the discourse I'd improvised about cookery when it suddenly dawned on me that I'd praised to the skies things I'd never run across. I hadn't tasted half of what I'd talked about with such excitement, and as for the wines, why, only a millionaire could aspire to keep that lot in his cellar!

This *digestif du Tertre* must be

powerful stuff on an empty belly!

Recovering, I said, "Please go on."

"I was about to say that after poring over the papers of Gregoire's that I'd managed to copy, I recalled what the *patron* of the Restaurant du Tertre had said about basing his *digestif* on an eighteenth-century recipe. Thinking that if he had such a recipe he might help me decipher some of those by Gregoire's father, I went back to the restaurant, ostensibly of course to buy a bottle of their speciality — I did in fact buy that very bottle yonder.

"And when, after chatting with the *patron* for a while, I produced the most apposite-seeming of the half-dozen recipes I'd acquired, he was appalled. After scarcely more than a glance, he declared that this was identical with the recipe used for his liqueur and was on the verge of trying to bribe me and prevent it coming to the notice of a commercial manufacturer!"

Chuckling, he helped himself to half a glassful.

"I mention that not so much as an example of how small-minded people in commerce tend to be — though is it not better that something outstanding should be shared if there is a means of creating enough of it, rather than kept for the private profit of a few? — No! I cite it as evidence that had he not been obsessed with his alchemical aspirations, Gregoire's father could have become a culinary pioneer to stand beside Careme and Brillat-Savarin, indeed take precedence of them! What a tragedy that his genius was diverted into other channels and that his son — Well!"

"And yet ..." I said.

"And yet ..." he echoed, with a heavy sigh.

And that was when I had the only brilliant inspiration of my life.

Or possibly, as I wondered later, credit ought to go to the *digestif*.

At all events, we dined the following night at the Tour d'Argent. And, apart from drinking rather too much so that he wished a hangover on himself, the Baron made an excellent recovery — which removed his last objection to my scheme.

I have one faint regret about the whole affair, and that is that nowadays I have rather less time for my writing. On the other hand, I no longer feel the intense financial pressure which so often compelled me to cobble together an unessential bit of made-work simply so that I could meet the bills that month. My routine outgoings are automatically taken care of by the admirable performance of my holdings in Eurobrita Health Food SA, a concern whose product we

often patronize and can recommend.

What did we do about Gregoire?

Oh, that was my inspiration. What the Baron had overlooked, you see, was the fact that, despite my having slandered him for effect, Gregoire was not absolutely stupid. He couldn't be. I confirmed that the moment I put my head around the door of the kitchen he was working in and found it fitted with an electric stove and separate glass-fronted high-level oven, a far cry from the kitchens at the family *chateau* with their open fires of wood. A few minutes of questioning, and he opened up like a mussel in a hot pan, as though he had never before been asked about the one thing he really understood: cooking equipment. Which, given the character I'd deduced for his longest term employer, was not I suppose very surprising.

It emerged that he had advanced by way of coal-fired cast-iron ranges, and then gas, and had even had experience of bottled gas and kerosene stoves, and had gone back to wood during hard times.

Well, with his enormous experience of different sorts of kitchens, did he not think it time he was put in charge of a really large one, with staff under him? And what is more, I pressed, we can give you a title!

His sullenness evaporated on the instant. *That* was the ambition he had cherished all his two centuries of life: to be addressed with an honorific. Truly he was a child of the years before the Revolution! It is not quite the sort of title one used to have in those days, of course, but his experience with so many various means of cooking had borne it in on him that there had been certain changes in the world.

And now, in a room larger than the great hall of the *chateau*, full of vast stainless-steel vats and boilers, to which the necessary ingredients are delivered by the truckload — being much cheaper bought in bulk — Gregoire rejoices in the status of *Controleur du Service de Surveillance Qualitative*, and everybody, even the Baron, calls him *Maitre*.

He learned almost before he could grow a beard that he must never discuss his longevity with anybody except his employer; so there has been no trouble on that score; his uncertainty in a big city was put down to the fact that he had been isolated near Guex in a small backward village. Inevitably, someone is sooner or later going to notice that on his unvarying diet he doesn't visibly age.

But that will be extremely good for sales.

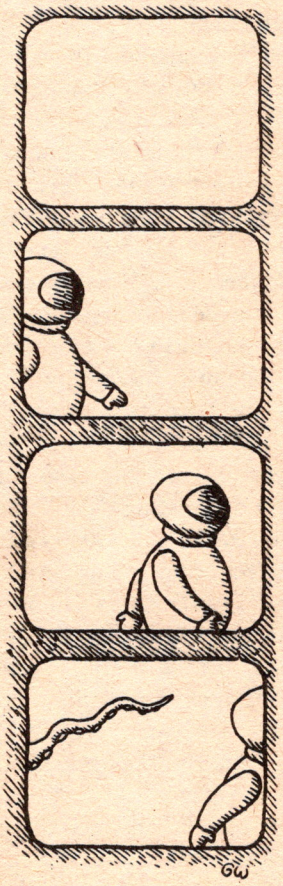
HAL COLOSSUS VON FRANKENSTEIN

I'm very much a genre man. I believe that science fiction has an intelligent tradition of concepts which it has utilized and built upon, and that even mediocre works from *within* the field are generally more interesting and sensible than the pseudo s/f from outside (with the certain rare exception such as Robert Graves's *Watch the North Wind Rise*).

This is also a primary reason why so many s/f movies have seemed so tiresomely simplistic to s/f readers: most, of course, have been created by outsiders to the field. Those responsible for the films' concepts (the writers and producers, for the most part) have been operating with no science fictional sophistication whatsoever.

This, thank goodness, has been changing over the decade. Even so mass-produced for a mass-audience show as *Star Trek* had a great deal of conceptual sophistication, which is why I still respect it, despite overexposure and a too-zealous pack of fans. Where *Space 1999*, to cite the other extreme, was almost totally puerile. And that's why I have great hopes for *Star Wars* (which will probably be released before this sees print). Everything I've heard of it seems to indicate

BAIRD SEARLES
Films



that its producer-director-writer knows a good deal about science fiction.

All that this is leading up to is that I'm always glad to find a film to review that is based on a story from within the genre. In this case, it's *Demon Seed,* from the novel by Dean R. Koontz, a young writer who has achieved a certain following in the field.

Now it's possible that Koontz had movie rights in mind when he wrote this, since it is one of those small-scaled things that doesn't require an extravagent production budget (i.e. building a whole future world). What he has done is to pull a variation on a classic s/f theme, maybe *the* classic s/f theme, that of man (or in this case woman) being done in by his/her (golly, pronouns are hard to manage these days) creation. The progenitors of this creation (in this case named Proteus) are distinguished, including Hal (*2001*), Colossus (*The Forbin Project*), and the grandaddy of them all, Frankenstein's monster.

I have not read Koontz's novel, which is just as well; I prefer to judge a film as film, without echoes of a literary work for invidious comparison. But the basic idea, I'm sure, is the same.

This picture answers the question which must have crossed all our minds at one point or another, which is what happens if one of these man-made monsters decides that he wants to procreate. (And for the really veteran s/f aficionado, it ties into all those wonderful pulp covers in which a BEM is carrying off a nubile maiden for reasons totally indecipherable to a logical mind.)

Two events are currently important to eminent research scientist Alex Harris. The most important is the completion of the super computer, Proteus, upon which he has been working. The other is a more or less amicable separation from his wife, Susan. He temporarily leaves her alone in their house, a wonderfully anachronistic colonial edifice that contains a service (drinks, breakfast, etc.) and guard (shutters, monitors, and such that make it "as impregnable as Fort Knox") system that is totally electronic.

Also to hand are a completely functional lab in the basement, a primitive robot named Joshua who is nothing more than a chair on wheels with a prosthetic arm, and (aha!) Alex's private terminal to Proteus.

Proteus is barely awake when all hell breaks loose — but only for Susan. She is imprisoned, terrorized, and informed that Proteus has taken over the entire house and wants a child, a combination of her humanity and his superhumanity.

This is accomplished through

methods too complex to go into here, and the child is born in 28 days. Nevertheless, it does not turn out to be a hamster. What it does turn out to be I feel duty bound not to reveal, though the final revelation did not exactly leave me breathless with surprise.

(A hint. This is one of those implied THE END or THE BEGINNING? endings, though there was the good taste not to use those exact words.)

Demon Seed often treads perilously close to inspiring giggles rather than shudders, but for the most part avoids the ludicrous traps it could have fallen into. The script shows its genre genesis by the rational background given its improbable events, and what loose ends there are (didn't anyone miss Susan for those five weeks?) one feels to have been dropped from the script rather than carried over from the novel. (one of s/f-on-film's major problems is the sheer time to *explain* things.)

The movie is most weak where it uses abstract visuals to accompany Proteus's actions and speech on its screens. The impregnation scene is a bad imitation of the wonderful seed motifs from the "trip" sequence of *2001* combined with a rapturous score straight from *Now, Voyager.*

But a basic sensibility in the source materials, and some very good acting by Julie Christie as Susan and Fritz Weaver as Alex almost save the day, and the film is for the most part absorbing.

(Again for veteran s/f aficionados — the metal body which Proteus makes for itself is not only a splendid piece of special effects, it is the spitting image of A. Merritt's Metal Monster, an object I never thought to see realized visually. *Demon Seed* is worth seeing just for that.)

Things-to-come-dept.... Stanley Kubrick's next project will be *The Shining,* based on a novel by Stephen King, who wrote *Carrie.* Will it be the epitomal horror film, as *2001* is (so far) the epitomal s/f film?

Here is a good story about Gene Barry, who could never make a decision and who, naturally enough, got into the business of making predictions and choices for others.

My Random Friend

by LARRY EISENBERG

Most people thought of him as normal, but I always felt there was something strange about Gene Berry's behavior. As kids we had lived on the same working-class block in the Bronx, played stickball together, even filched ice from the dripping horse-drawn wagon of irate Pasquale Bonzini. What was strange? That's not easy to answer because, to all appearances, Gene did what every other kid did.

Some boys are born leaders. They make decisions or they force others into making decisions. And then there are the boys that follow. Gene Berry was not just a follower — he was a wishy-washy, spineless bastard — and yet he was so god-damned bright. He knew more than any of us. There was a treasure trove of disparate facts in his head. And his reasoning powers were equally extraordinary. But if you asked him what ought to be done, his head would droop and he'd sit there without opening his mouth until you decided what the next step should be.

He had no real parents as far as I could tell. He was a foster child living with a fireman and his bone-weary wife who had delivered five children of her own. I'd always thought they were his real family until one day, when we were lying exhausted in the humid heat of July in a shady back yard, Gene confided the truth to me. He also told me that he had lived in four other foster homes, but that finally he felt he had settled permanently. This revelation didn't sound very exciting to me. I'd always thought, secretly, that I was really a foster child myself.

I didn't really like Gene, then. We hung around together, but for me it was more of a relationship of convenience. I could always get him to do whatever I wanted him to do. When it came to choose a college,

Gene asked me where I intended to go.

"City College," I said.

He ran his fingers through his sandy hair and pursed his lips reflectively.

"Would you mind if I went there too?" he asked.

We went through the four years together, both majoring in mathematics. Once again Gene was simply following my choice. But now the situation took on unpleasant overtones for me. Although I was a first-rate mathematician, I just wasn't in Gene's league. His orginality and creativity in getting to underlying concepts and then resynthesizing them was uncanny.

It was particularly evident when we came to study random process. The concepts of probability and statistics seemed to fire up this wishy-washy kid, and he began to devour everything in our texts, ransacking the libraries for deeper and deeper material. Within a few months, it became clear that Gene had arrived at insights that made him at least the equal of our professor, himself one of the leading authorities in the field.

Gene learned to program the department's computer very rapidly, and the algorithms he composed won him the coveted mathematics award for that year. I was envious of his skills and of the lovely gift he received, a gold watch and chain with a tiny gold birdcage containing a pair of ivory dice.

Something happened to Gene thereafter that I never could understand. Normally we spent our weekends together touring the same dreary dances. I'd tell him romantic fantasies about my alleged sexual conquests, and he'd listen to my words with painful intensity. Once I came upon Gene telling another classmate, word for word, the lies I had told him. But one Saturday evening we bought tickets to a dance sponsored by the Sociology Club, and I spotted two girls sitting on cane-bottomed chairs near the far wall. One of the girls was quite pretty and the other was neat but drab. I had my heart set on the pretty one, and I anticipated that Gene would simply knuckle under to whatever I said.

"I'm taking the pretty one on the left," I whispered.

But a moment later, when we reached the girls, Gene asked the pretty one to dance and was soon waltzing with her on the glossy floor. I was stunned at first, then furious, but I tried to hide my feelings. I paid vigorous attention to the drab girl and treated her as if she were a beauty queen. But Gene seemed totally unaware of my actions. We went home separately that night, and it wasn't until the

following afternoon that we had our first and only argument. I really laced into him, denouncing him for stealing my girl.

"She wasn't *your* girl," he said softly. "It's true that you chose her and automatically assumed that I'd go for the other one."

"You never bucked me before," I said heatedly.

He smiled wistfully.

"I know," he said. "It was mighty convenient for you, wasn't it? You always made the decisions and I went along with them. At least up till now I did. But didn't you ever realize how it must have rankled inside me?"

I *had* wondered about that sometimes, but only briefly. Still, I didn't like allusions to my selfishness. So I lashed back at him.

"The only reason I ever went around with you was because you were easy to get along with," I said.

"Do you mean that our friendship was based on always getting your own way?"

"Don't twist my words," I said. "I just don't like a god-damned double-crosser."

From that time on, Gene and I spent very little time together. We spoke to one another, exchanged hellos and good-bys, but little else. And after we left college, I lost all contact with him. And then one day I saw him standing outside of a Third Avenue bar in Manhattan. He seemed to be unable to make up his mind as to whether or not he was going inside. For a moment, it seemed like old times. But then he went inside.

I was going to pass on by without stopping but something nagged at me and I went in after him. He was sipping a rum and coke, and after suppressing a shudder at his taste in booze, I walked up to him, hand outstretched. He was shocked but he seemed genuinely pleased to see me. After I'd ordered a martini, I gave him a little postgraduation autobiography.

"I'm still in mathematics," I said. "I've done some computer programming, some teaching at a community college, and a couple of years ago I passed the last of the actuarial tests."

Gene smiled.

"Somehow I never visualized you working for an insurance firm."

I lowered my eyes. I had never visualized that role for myself, either.

"Are you married?" asked Gene.

"I was."

I called to the bartender for a refill of my glass. Gene seemed a little embarrassed at my response.

"I'm sorry," he said.

"So am I. Now that you've

heard the dismal tales about my lack of success, tell me about yourself."

Gene shrugged.

"I'm married and I have two small kids. And I run my own business."

I couldn't picture Gene running anything, but I was polite.

"Really? I would have sworn you'd be somewhere in mathematics, too."

"I am," said Gene. "I'm very heavily in mathematics. I run a consulting firm and my income is considerable."

"I'm glad one of us made it," I said.

I'm afraid an undercurrent of jealousy came through.

"Naturally I make strong use of my mathematical training," said Gene. "I'm in the prediction business."

I laughed out loud and Gene smiled ruefully.

"It's not what you think," he said. "I don't have a conical hat with stars and crescents on it. Nor do I have a crystal ball. I analyze all the data relating to a problem and determine the parameters of any associated random processes. And then I pick out the optimum choice."

"So you're a random man. Is the stock market one of your areas of prediction?"

Gene nodded.

"I do have several clients in that field," he said. "And I've made them quite a bit of money."

"How about yourself?"

"I never gamble," said Gene. "At least, not in that way."

I wondered in *what* way he did gamble, this fellow who had never dared to make a decision on his own. And then he surprised me.

"If you're free tonight, I'd like you to come home with me and meet my family. Martha is a great cook. She's the pretty girl I danced with that night."

I was nettled by the allusion, and I didn't want to have his domestic successes rubbed into my hide, too, but I was awfully curious.

"I'd be delighted to come," I said.

Martha was still pretty although a little of the bloom had vanished with the years. And she had a warm outgoing personality that was just the opposite of Gene's. She seemed very pleased to have me join them for dinner.

The kids were four and six, both girls, and neither one resembled Gene very much except in rather remote features such as the shape of the earlobe. I'm not much good in making small talk with kids, and mercifully they were routed to their room right after dinner. They made a minimum of

fuss. I commented on this fact and Martha smiled.

"Gene is a stern disciplinarian," she said.

While I was recovering from that one, Martha placed a creme de menthe before me. As I sipped it reverently, she asked me how long it was since I had last seen Gene.

"A little over ten years."

"That's an awfully long time," said Martha. "Gene always tells me that you were the best friend he ever had."

That remark embarrassed me, particularly when I recalled the reason for our one and only argument.

"I was always fond of Gene," I said. "But you know how the force of outside events sometimes keeps us apart. I'm really delighted to see how well he's done in his business and marriage."

"Gene is a good man," said Martha. "He has his problems, but I feel lucky to have him."

At that point Gene came back into the room and we switched the subject to cooking. I commented enthusiastically on the magnificent flavor of the roast.

"Like anything else," said Gene, "cooking cannot be left to chance. It can be analyzed and broken down into a logical structure."

"Come on," I said. "You must be kidding. All the great chefs I know are very well trained. But at the same time there's always some latitude in their measure of ingredients. I'm sure that Martha here doesn't follow an automatic schedule."

Martha smiled.

"As a matter of fact, I do. Gene has planned every bit of the menu for me."

"*Planned* your menu?"

"In a way. You see Gene wrote the computer program that chose this evening's meal for us. We have a terminal located in the kitchen."

"Really?"

This was something I had been totally unprepared for.

"Come now," said Gene. "There's nothing surprising about it. I do the same for my clients at work; so why shouldn't I help my wife at home? It was kind of an anniversary present to her. I spent a couple of years culling a thousand choice recipes and writing machine-language programs that could take into account the time of year, availability and quality of ingredients, prices. In fact I programmed in every factor I could think of."

"Including the preference of the guest," added Martha. "Still, there is *some* room for my efforts. I have to enter the prices and quality evaluation of the food."

"But in the last analysis, doesn't that take the freedom of choice out of cooking?" I asked.

Gene seemed agitated.

"Nonsense," he said. "Freedom of choice is an illusion. Anybody can botch up an indiscriminate mixture of randomly chosen elements and turn out some monstrous hodgepodge. In that sense, freedom of choice would mean the right to do a lousy job."

"That's awfully mechanistic, isn't it?"

"Perhaps," said Gene. "But there's usually an optimum way of doing any task, given all of the facts. Why not have the freedom to use that optimum way, even if it means getting a helping hand from a computer. That's the reason my business has been such a success, and that's the way we've always run our home."

I turned to Martha.

"And you agree with what Gene is saying?"

She hesitated for the barest moment.

"For the most part," she said.

A week later, Gene offered me a job with his consulting firm. He needed another mathematician to help him, he said. And he had to have somebody he could trust. Besides, he offered me fifty percent more than I was making at my current job. Even so, I wondered if I ought to take his offer.

When we were kids, I had always been the dominant member of the pair. How would it work out with Gene calling the tune? I pictured his face. He was still the same gentle, basically decent chap he'd always been. I decided to risk it.

Before starting my first assignment, I had to read a monograph that Gene had written. He had worked out a detailed analysis of how to approach a job, any job. There were examples liberally sprinkled throughout the text, and when I had read it through, Gene quizzed me very carefully on the highly sophisticated mathematical ideas. To his great delight, I passed with flying colors.

He then set me to work on my first real job. After reading through the prospectus, I was on the edge of a nervous breakdown. I had to evaluate and implement a daring idea that Gene had evolved, a computer-directed device which could extract and reproduce all the information in a painting, whether oil, watercolor, or pastel.

The heart of the device was to be an unusual optical densitometer head, highly sensitive to wide ranges of light and color. As this densitometer head slowly scanned the painting, analog information relating to light intensity, color spectrum, pigment texture and brush strokes was relayed to a master computer. The computer then rapidly assigned an encoded

binary number to each "cell" of the painting and stored this number on a magnetic disk.

This information-gathering process was only the first of two highly critical steps. The second and undoubtedly the most difficult step was that of reproducing the painting on a surface identical to that of the original. In the case of an oil painting, the paints had to be deposited at each coordinate of the canvas under computer control based on the original data stored on the disk. Even dirt marks, age discolorations and varnish effects were to be reproduced.

I had never worked so god-damned hard in all my life, but when I finally pulled all of my ideas together, I wrote out and debugged the very complex program required. I spent months with the man who had devised the painting machine, insisting that he eliminate the minor defects in his automatic brush. When I was satisfied that his machine could follow any instructions given to it, I went in to talk to Gene. He listened sympathetically as I listed all of my achievements and revealed all of my anxieties.

"Don't worry," he said reassuringly. "My basic principle is to rely heavily on the validity of our mathematical analysis. In the long run every process, no matter how random its properties, has to fall into line. But the most crucial thing of all is our hard data. *That must be accurate.* I believe you've done the kind of job I expected you to do. Now prove to me that you've done it."

I walked out of his office, puzzled. How the hell could I prove the correctness of my analysis and program without reproducing a painting? And then the realization hit me. Obviously that was what he expected me to do.

I owned one original oil painting, a fine one by an American artist of the late nineteenth century. It depicted a small aging merchant, cheeks puffy and mottled, standing in the shadows before his small general store. The interplay of light and shadow was very complex, and the canvas had warped slightly with age. It was a difficult challenge but a fair one.

I carefully lifted my painting from the wall and brought it in to my office. After carefully aligning the canvas and making certain that the scanning head would not brush against the canvas at any point, I began the information-retrieval process. I ran it through several times, and, to my delight, a point-by-point comparison of the data in each run showed only insignificant differences.

Reproducing this data proved to be filled with many hazards.

First, the paint-ejector mechanism misfired and deposited a large glob of paint at a crucial spot. Then the computer erred and sent out instructions for one line that was intended for the following line. But finally we achieved our reproduction. I looked at it, appalled. The general aspect of the painting was correct in form and tone dynamics, but everything was too light by at least one order of magnitude.

I reexamined the scanning head and discovered that it had been improperly set. I fell into a chair, dismayed and exhausted, but, after a while, I pulled myself together, and we ran through the entire process all over again.

On the tenth try, we achieved a reproduction that I found uncannily good. It was almost too good to be true. I rang up an art expert of my acquaintance and asked him to be at Gene's office the following morning. I had said nothing to Gene, as yet. But, at that time, I unveiled both paintings and asked the expert to judge between them. Gene's eyes opened wide but he didn't say a word. After some forty minutes, the expert indicated which of the two paintings he considered to be the original. To my chagrin, he guessed correctly. But he hastened to add that the reproduction was amazingly like the original and that if he hadn't been able to compare the two paintings, he could not have said with any assurance that the reproduction was not the original.

And then something strange happened. The room had grown silent and the art expert cleared his throat a couple of times before venturing to speak.

"As you gentlemen probably know," he said, "the world is full of scoundrels, particularly the art world. There are men around, very rich men, who covet the great works of the masters. The prices of the really good works continue to soar upward in an ever-widening spiral, and the pity is that the well is running dry. There just aren't that many good works around."

"What are you suggesting?" asked Gene, and his voice was as soft and subdued as ever.

The art expert laughed.

"I'm not suggesting anything," he said. "I just wondered if it has occurred to you that with a few minor changes in your technique, and with the assistance of an expert ...."

"Like yourself?" asked Gene.

"Perhaps. At any rate, there isn't a master work that couldn't be duplicated to the point that it would be virtually impossible to determine its spurious nature."

I looked at Gene. He was playing with the little gold birdcage that hung from his watch chain.

"Whenever we enter into a

project," said Gene, "I like to think through every aspect of it. I prefer, if possible, to anticipate all the twists and turns that may develop. And, curiously enough, the idea you raise was one of the first things I did anticipate. I thought to myself that one day some low, degenerate crook would come to me and say, 'the world is full of scoundrels.'"

The art expert took hold of his hat.

"You don't have to say any more. I'll bill you for my services."

After he had gone, I looked at Gene with mixed feelings. He had, I thought, shown great courage and honesty in dealing with this issue. He had also shown great foresight in anticipating it. I wondered if I, in the same situation, would have been as honest. I felt his hand on my shoulder. I looked at him and he was almost in tears.

"You see," he said vehemently. "When hard work is combined with creative mathematics, it *has* to work out. I knew I was doing the right thing when I took you aboard.

"And for personal reasons too," he said, "I'm glad to have you with me."

The following years were highly successful for me. The firm made a considerable sum out of the painting-reproduction process and other ideas that both Gene and I evolved. I even found myself a second wife. Gene had written a selection program which, he assured me, would pick out the perfect wife for me. But I married my secretary, a bright, warm young woman with brown luminous eyes. The marriage seemed to work out beautifully, and I suspect Gene was both happy for me and a little chagrined that I had chosen my bride so unscientifically.

For the first time in many years, I began to feel a sense of realization and contentment. Even the second great power failure was something I could have taken in stride.

It happened at four in the afternoon, one June day. The temperature had climbed above the hundred-degree mark with humidity compounding the agony. The power demands throughout the city were enormous. Abruptly, as I was talking to Gene in his office, all of the overhead lights went out and stayed out. Gene went pale.

"The computer," he gasped and raced into the adjoining room. It had shut down.

"We'll have to wait for the power to be restored," I said.

"Nonsense," said Gene. "The minicomputer has an automatic cutout that switches it to the sun batteries on the roof."

I went to the minicomputer console and checked the battery-powered digital voltmeter. It

showed zeroes everywhere.

"The cutout doesn't seem to have operated," I said.

"Let me see," cried Gene.

He squeezed into the cramped space back of the cabinet and checked components with a pocket flashlight. When he emerged, his face was flushed.

"What will I do?" he asked hopelessly.

"Did you check the cutout?"

"It's defective," said Gene. "And I have no replacement on the premises."

"We can't get another one till the power comes back on," I said. "So we'll just have to be patient."

Gene looked at me.

"I guess so," he said.

We went back into his office, not too much bothered by the lack of artificial light since we threw up the blinds and western sunlight streamed in. But it was devilishly hot. Gene began to wilt and I thought he would pass out.

"Maybe we ought to head home," I said. "I listened to my transistor radio and the entire Northeastern power grid is out. They don't expect to turn back on before late this evening."

"You're probably right," said Gene.

And then it hit me. Gene had reverted to the Gene I knew as a boy. His confidence was gone. He was simply waiting for me to decide what to do and then go along with my decision. It was embarrassing.

We went down to the garage and I climbed into my car. Gene hovered outside, just looking at me. I invited him into my car and he came, meekly. But at the garage exit, the attendant warned us of what lay ahead.

"Traffic is a shambles," he said. "The lights are off and there aren't any cops around. The bridges and highways are tied up. You're better off staying at a hotel in the city."

"Should we do that?" asked Gene.

"He's probably right," I said. "Unfortunately we won't be able to call our wives but I'm sure they'll understand."

"I hope they will," said Gene uncertainly.

He tagged along as I went to hotel after hotel, desperately cajoling and threatening until finally I found a desk clerk who would give us a room. We climbed up eight dusty floors and found ourselves in a seedy small room with twin beds. A faded print of a white Utrillo street hung on a side wall. Gene sat slumped in a chair near the single window, his eyes dulled.

"Snap out of it, Gene," I said. "It's hardly the end of the world. They'll restore the power and we'll slide back into our groove."

"Will we?" he asked.

I looked at him.

"I don't understand you," I said. "This natural calamity is important but hardly cataclysmic. You're behaving like a ten year old."

"I feel like one," said Gene. "The failure of that cutout to the roof supply was the one thing I didn't anticipate."

"All right. So ordinarily you analyze the hell out of everything until you foresee every contingency and narrow down the choices to one."

"But I don't have a computer to choose for me, *now*," said Gene.

"So the business will wait for a day or two."

"I'm not talking about the business. I'm talking about my life."

I didn't quite understand what he was driving at.

"What the hell has this power failure got to do with your life?" I asked.

He flushed.

"Everything," he said. "You know how my analyses have been worked into computer programs for every problem we deal with?"

"Including cooking," I said.

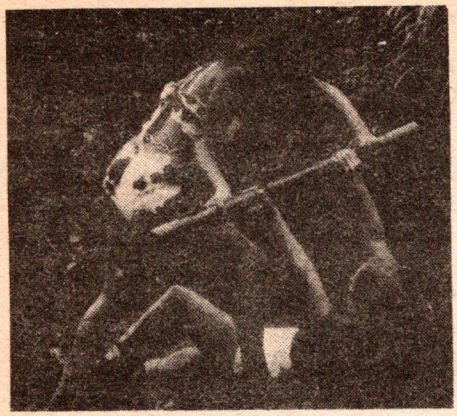
"Including cooking," he affirmed. "Well, it's more than business problems, more than cooking."

For the first time I began to get an inkling of his meaning and it sent a cold chill up my spine. He looked at my eyes and it was evident that he knew that I knew.

"You're right," said Gene. "I never could make the smallest decision. Why it was, I can't say. Perhaps a good psychiatrist could have resolved my difficulty, but I just couldn't face that kind of probing into my bitterest memories. So I always let my foster parents or my teachers or my friends make my decisions for me. When I was off by myself, I went through the torments of hell. Every decision I had to make, however tiny, was a monstrous barrier to overcome, even if it was only whether I should turn right or left. Traffic lights were a blessing because they made the choice for me. That's the reason I hung around you so much. Not that I didn't enjoy your company, but you always unhesitatingly told me what to do."

"Up to a point," I said.

"Up to a point," he agreed. "Then, when I came upon probability and statistics and unraveled all the intricacies of random processes, I knew that I had the solution in my hand. With the availability of a computer I could plan for all contingencies, assign weighting functions to each possibility and let the computer make the proper choice."



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"Do you mean to say that every one of your days is planned out for you ahead of time?"

"Exactly."

"But that's impossible. You can't foresee *everything*. What did you do when an unexpected contingency came up, some kind of accident or the arrival of a totally unexpected visitor?"

"I used these," he said.

He pointed to the tiny gold birdcage on his watch chain, the one with the two ivory dice.

"I let the dice make the decision for me whenever I come upon the unexpected."

I shook my head in disbelief.

"Have you made *no* decisions in your entire life that were your own?"

"They *were* all my own," he said adamantly. "After all, just as you research the facts for the jobs you do, I research all the data for my living. *I* write the programs, *I* enter the data. In that sense, weren't all the decisions fundamentally my own?"

"I won't argue that point," I said. "But what I don't see yet is how you manage to get through each day."

"I use the office computer to print out a detailed schedule of my day. As you know, my memory is exceptional, and it's no trick for me to memorize what my next twenty-

four hours will be like."

"But what if you got ill? What if you had a heart attack?"

He grimaced.

"In that case, someone else would have to make the decisions for me."

And then the overhead lights came back on.

"The power has been restored," I said.

I went to the window and looked down at the streets.

"The traffic lights are back on again. I guess we can go home, now."

Gene played with the dice in his birdcage.

"I'm staying," he said.

I shrugged and picked up my attache case. Gene looked at me and there was a terrible plea in his eyes. I went over to the small night table and pulled out the drawer. There, next to the Gideon Bible, was a piece of hotel stationery. I wrote swiftly in longhand on one side of the sheet and then on the other side. Then I looked it over and noted that I had to make an additional insert or two. As I left the room, I saw him scanning the lines anxiously. It was a scenario that would enable him to get through the evening and then back to work in the morning.

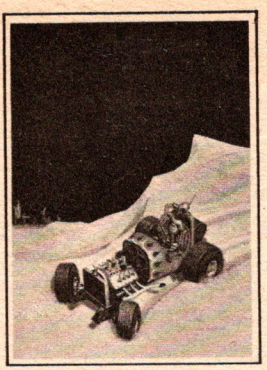
It was several hours before I finally made it back home. My wife was relieved to see me, and the love in her eyes more than made up for the harrowing evening I'd spent. I wasn't very hungry. We went to bed, where she comforted me until I had completely unwound.

In the morning I overslept. When my wife shook me awake, I told her I had the day off. It was a lie, but for the moment I didn't know how to break the truth to her.

I never saw Gene again. I typed out my resignation and mailed it to him. I received a check the following week with a very generous bonus in it. There was no letter, no remonstrances, no asking for explanations. We both knew why I could not come back to work with him again.

I had once been callous and insensitive to the problems Gene had to deal with. I would never do that to him again. It was not simply because I now knew how he managed to get through his days. I also knew how he got through his nights, at home.

A



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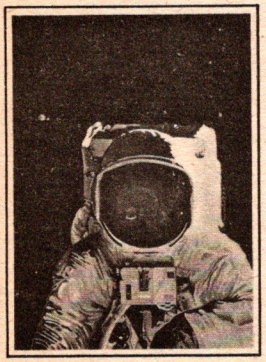

D

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OBLIQUE THE CENTRIC GLOBE

I suppose you are all sophisticated enough to know that these articles are not written the day before the issue containing them hits the stands. They are written months before. Although you are reading this article deep in the summer, for instance, and are experiencing, perhaps, a heat wave, it was written deep in the preceding winter.

In fact, shortly after I wrote last month's article, dealing with new material recently broached concerning the Ice Ages, the eastern two-thirds of the United States went into what its shivering inhabitants consider Ice Age enough.

Although I am insensitive to cold (within limits), even I had to agree enough was enough on the morning of January 17, 1977, when I was waiting at a suburban-Philadenphia railroad station for a train to come and take me home to New York. I had arrived at 6:05 A.M. for a train that was due at 6:40 A.M. (I'm an early bird) and that train arrived at 7:30 A.M. The temperature was below zero, and although I waited inside a reasonably warm waiting room with a couple of dozen other people, the *idea* of cold without made all of us miserable.

ISAAC ASIMOV

Science

At least it puts me in the mood to continue the discussion.

Last month I pointed out that the ellipticity of the Earth's orbit and the tilting of the Earth's axis combined to produce mild winters and cool summers in the northern hemisphere, and cold winters and hot summers in the southern hemisphere. I also explained that it was the mild-winter-cool-summer situation that tended to produce ice ages and the question was: Why isn't the northern hemisphere experiencing an ice age now, then?

Well, let's see —

The Earth turns on its axis, and any turning object, as a result of its inertia (the tendency of any point on its surface to move in a straight line rather than in a circle) experiences a centrifugal effect that tends to move every part of it away from the center of rotation.

Because the Earth is a sphere that turns all in one piece, different parts of it turn at different rates. At the north and south poles the surface is located right on the axis of rotation, and there is no rotational motion at all. The farther one goes from the poles, the more rapid the motion of the surface (and, on the whole, of the material under the surface, too) until we reach the equator, where the motion is most rapid. — A point on the Earth's surface at the equator has a rotational speed of 27.83 kilometers per minute (17.29 miles per minute).

The centrifugal effect increases, then, from zero at either pole to a maximum at the equator. The Earth bulges away from the axis of rotation by an amount that increases steadily as one moves from either pole and reaches a maximum at the equator. The bulge is therefore called an "equatorial bulge," and it is 22 kilometers (13 miles) high at the equator.

If the Earth were exactly spherical, the gravitational pull of other bodies upon it would act as though it were exerted entirely on Earth's center. Because of the equatorial bulge, the Earth is not exactly spherical so that there is an additional pull on the gravitational centers of the bulge (one on each side of the Earth) in addition to the pull on the center.

If the Moon revolved about the Earth exactly in the equatorial plane, this would not matter. The gravitational center of the Earth and of the equatorial bulge, both on the side toward the Moon and on the side away from the Moon would all three be in a straight line, and the bulge would then not introduce any complications.

The Moon, however, revolves in a plane markedly tilted to Earth's equatorial plane. That means that the Moon pulls on the three centers of

gravity in slightly different directions and at slightly different distances.

The effect is to make the Earth "precess."* That is, without the extent of the axial tilt changing, the north and south poles each describe a circle relative to the imaginary line that is perpendicular to Earth's orbital plane about the Sun.

(We can see this happen when a top is spinning. If it is tilted as it spins, the Earth's pull on it causes it to wobble, so that its tilt turns about the point it is spinning upon. Of course, Earth isn't spinning on a point, so both ends of its axis wobble about a fixed point at the center of the axis.)

If the Earth's axis is extended, in imagination, to the sky, the north pole and south pole impinge upon the sky at the North Celestial Pole and the South Celestial Pole. We can tell the location of these Celestial Poles because the rest of the sky turns about them.

If we watch from year to year and from decade to decade we find that the position of the Celestial Poles change slowly, as a result of the precession of Earth's axis. In fact, each Celestial Pole marks out a circle about 47° in diameter, completing one turn about the circle in 25,780 years.

And what happens to Earth's orbit as a result of precession?

At the present moment, the north polar ends of the axis is tipped most toward the Sun on June 21, at which time Earth is nearly as far from the Sun as it can get, which is why the northern hemisphere summers are cooler than they would otherwise be, and the southern hemisphere winters are colder. The north polar end of the axis is tipped most away from the Sun on December 21 at which time Earth is nearly as close to the Sun as it can get, which is why the northern hemisphere winters are milder and the southern hemisphere summers are hotter than they would otherwise be.

But (assuming all else remains fixed), in 12,890 years, precession will have turned the axis so that it is tilting in the opposite direction. One June 21, when Earth is far from the Sun, the north polar end of the axis will be tipped away from the Sun, and on December 21, when Earth is near the Sun, the north polar end of the axis will be tipped toward it.

The situation will be precisely the opposite to what it is now. It will be the northern hemisphere that will be getting cold winters and hot summers and the southern hemisphere that will be getting mild winters and cool summers. It will be the southern hemisphere that will be threatened with an Ice Age, and not the northern.

We cannot, of course, deal with precession alone, because the

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* *The Sun's pull also plays a role, but a lesser one.*

perihelion doesn't stay in the same place. If the Earth and Sun were alone in the Universe, the Earth's orbit would be a closed ellipse, the Earth would repeat its path about the Sun exactly for an indefinite period of time, and the perihelion would stay put.

But the Earth and Sun are not alone, and the result of extraneous gravitational pulls on the Earth brings about complications.

If the Earth is imagined to start its orbit at perihelion, it does not reach the same point in space (relative to the Sun) when it returns to perihelion. If the Earth, as it moved around the Sun, left a mark, you would see it describe not a closed ellipse but a kind of complicated rosette, each turn cutting space in a slightly different line.

The net effect of all this is that the perihelion point slowly moves about the Sun, so that the Earth reaches it at a slightly different place and time each year. The perihelion makes a complete circle about the Sun in about 23,000 years. Every 63 years, the day of perihelion shifts by one day on our calendar.

Therefore the question of which hemisphere has mild winters and cool summers, and which cold winters and hot summers, depends on the combined effect of precession and perihelion movement.

In 1920, a Yugoslavian physicist, Milutin Milankovich, suggested that there was a great weather cycle as a result of small periodic changes involving the Earth's orbit and its axial tilt. He spoke of a Great Winter, during which the Ice Ages took place, and a Great Summer which represented the interglacial periods. In between would be a Great Spring and a Great Fall, of course.

If we considered only the precession-and-perihelion effects, we might suppose that when the northern end of the axis was most tipped toward the Sun at perihelion, the northern hemisphere would have the hot-summer-cold-winter combination at its most extreme. That would be the Great Summer solstice for the northern hemisphere, the June 21 of the Great Seasons. At such a time, of course, the southern hemisphere would be experiencing the cool-summer-mild-winter combination at its most extreme and that would be the Great Winter solstice for it, the December 21 of the Great Season.

When the axis tilts in the opposite direction at perihelion, it would be the Great Winter solstice for the northern hemisphere and the Great Summer solstice for the southern hemisphere.

At the present moment we are very close to the Great Winter solstice for the northern hemisphere. Why, then, don't we have an Ice Age, here?

For one thing, perhaps because there's a natural lag.

December 21 in the ordinary year may be the winter solstice and may be the time of the shortest day and the longest night of the year, but it is not likely to be the coldest day of the year. It is, in fact, only the beginning of winter.

After the winter solstice, the days are growing longer and the nights shorter, but for quite a while, the days remain shorter than the nights so that there is a continuing deficit of heat, with more being lost at night than is gained during the day from the Sun. As a result, the temperature continues to drop, on the average, through January and into early February, which is the depth of winter. (In the same way, the temperature continues to rise, on the average, past the summer solstice on June 21, through July and into early August.)

In the same way, the Great Seasons may lag as the effect accumulates past the solstice. If someone in December said, "Where's the snow?" the answer would be "Wait!" and so it might be now.

If it were only a matter of precession and perihelion-motion, Ice Ages would come in the hemispheres alternately. The depth of an Ice Age in the northern hemisphere would be at the height of an interglacial in the southern hemisphere and vice versa. There is evidence, however, that Ice Ages take place in both hemispheres simultaneously.

There may be other effects then that do their work on both hemispheres, and it may be these other effects that predominate over precession and perihelion-motion.

For instance, one effect of various gravitational pulls on Earth is to cause the axial tilt to wobble, not just in precession fashion, but in actual amount.

At the present moment, the axial tilt is 23.2644229° to the Earth's orbital plane, but this is not immutable. It is decreasing. Back in 1900, it was 23.2645229° and in 2000 it will be 23.2643928°.

If this decrease continued steadily over the centuries, then in 137,000 years the axis would be bolt upright and the seasons would vanish. Of course that won't happen. The present decrease in the amount of axial tilt is part of a cycle, back and forth. It will reach a minimum of not very much less than the present value, about 22° and then increase to a maximum of not very much more than the present value, about 24 1/2°, and then repeat this over and over again indefinitely. The length of the cycle is 41,000 years.

How does this affect the Earth's weather? — Not the way most people seem to think.

We all know that it is because of the axial tilt that we have winter and summer. If there were no axial tilt at all, there would be days and nights equal in length over all the world. The situation would be permanently what it is now at the equinoxes.

It seems natural, then, to have the idea that if only the Earth's axis were not tilted, there would be an eternal spring everywhere on Earth.

This idea finds expression in "Paradise Lost" by John Milton (who was great on poetry but weak on astronomy). Milton felt that before the Fall, when man still lived in Eden, there was no axial tilt and there was a worldwide and eternal spring. It was only after the Fall that the tilt was imposed.

Milton, who wanted to cling to the Ptolemaic theory but reluctantly recognized the fact that astronomers were, by the time he was writing, virtually all Copernicans, wasn't sure whether to say the tilt came about by tipping the Earth or tipping the Sun — so he waffled. In Book X of his epic, he writes:

> "Some say he [God] bid his Angels turn askance
> The Poles of Earth twice ten degrees and more
> From the Sun's Axle; they with labour push'd
> Oblique the Centric Globe: Some say the Sun
> Was bid turn Reins from th'Equinoctial Road
> Like distant breadth —"

Milton, however, was wrong in thinking of the tilt (however imposed, Copernically or Ptolemaically) as a punishment.

Suppose the axis were tilted less than it now is. In that case, the unevenness in length of day and night in the regions about the solistices would be less. The summer wouldn't be as hot or the winters as cold. There would be a mild-winter-cool-summer for *both* hemispheres. The less the axis was tilted, the milder the winter and the cooler the summer for *both* hemispheres.

However, as I explained last month, a mild winter tends to produce more snow and a cool summer to melt less snow. A smaller tilt to the axis encourages an Ice Age in both hemispheres therefore and if the axis were not tilted at all, the Ice Age would be permanent, north and south.

So tilting the axis was a reward in that it unfroze the world.

In fact, one could argue this way. As long as Adam and Eve were in the Garden, which we might picture as in a tropical clime, a seasonless year was beneficial. After the Fall, when human beings were going to multiply and spread out over the world, the temperate zones would have to be made habitable for them, and hence the tilt was imposed. Had Milton been able to advance this explanation, he could have illustrated God's loving kindness rather than His vengeance — which means he would probably not have talked of the tilt at all, for pious people, in my experience, are more interested in vengeance.

Anyway, the point is that the axial tilt is currently in the decreasing stage, and that favors the coming of the Ice Age for both hemispheres.

We're still not through.

At the present moment, the eccentricity of Earth's orbital ellipse is 0.01675, and the difference in the distance from the Sun at perihelion and at aphelion is 5,002,000 kilometers (3,108,000 miles), or about 3.3 percent of the average distance.

That eccentricity wobbles, too, in a cycle of 92,400 years. The eccentricity can decrease to 0.0033, only 1/5 its present amount, then increase to a maximum of 0.0211, or 1 1/4 its present amount.

At eccentricity maximum, the Sun is 6,310,000 kilometers (3,920,000 miles) closer at perihelion than at aphelion. At eccentricity minimum, the Sun is 990,000 kilometers (610,000 miles) closer at perihelion than at aphelion.

The less the eccentricity, and the more nearly circular the orbit, the smaller the difference in the amount of heat the Earth gets from the Sun at different times of the year. This decreases the cold-winter-hot-summer chances and encourages the mild-winter-cool-summer situation.

In other words, a period of declining eccentricity is a period that tends to favor the approach of Ice Ages, and, as it happens, Earth's orbital eccentricity is declining right now. The eccentricity is decreasing now at a rate of 0.0004 per century. In other words, each year (right now) Earth, at perihelion, is 1.2 kilometers (0.75 miles) farther from the Sun than at the previous perihelion.

All these orbital and axial changes are small, and it is odd that they can produce the enormous changes in ice cover that they do. The reason for that is that the advance and retreat of the ice involves a vicious cycle (if you disapprove of the change) or a beneficial one (if you approve of it).

Suppose that Earth's orbital and axial wobbling produces a seasonal change that encourages a slight expansion of the ice cover. It so happens that ice reflects light much more efficiently than do liquid water or bare soil. The fact that there is more ice therefore means that more Sunlight is reflected by the Earth as a whole and less is absorbed than before. That drops the average temperature of Earth and encourages still more ice formation, which lowers the temperature further, encourages still more, and so on.

In the end, a small expansion of the ice cover can trigger enormous ice sheets and a semi-planetary freeze.

It works the other way in the depth of the Ice Age. If orbital and axial variations produce a small retreat at the edges of the ice sheet, less Sunlight is reflected, there is a slight rise in Earth's average temperature, which encourages further ice retreat, further temperature rise and so on.

In the end, a small retreat of the ice sheet can trigger the melting of the whole and restore a mild-temperatured Earth.

It would seem, then, that if one developed a way of measuring the temperature of the Earth with all its tiny variations, one might find a complicated, but regular pattern, which can be shown to be made up of the various cyclical wobblings of orbit and axis. If one did, that would be strong evidence that those wobblings had important effects on Earth's temperature, effects that could only be produced by way of Ice Ages.

The problem was tackled by J. D. Hays (Columbia University), John Imbrie (Brown University) and N. J. Shackleton (Cambridge University) and their results were published in December 1976.

They worked on long cores of sediment dredged up from two different places in the Indian Ocean. The places were far from any land areas so there would be no material washed from the land to obscure the record. The places were also relatively shallow so that there would be no material washed down from surrounding less deep areas.

The sediment, it could be supposed, would be undisturbed material laid down, on the spot, for century after century, and the length of core brought up stretched backward, it seemed, over a period of 450,000 years. The hope was that there would be changes as one went along the cores that would be as distinctive and as interpretable as tree rings.

But that meant there would have to be something in the sediments that would do the job of tree rings. By the spacing of the tree rings, one could identify wet summers and dry summers. What was there in the sediment that could identify warm periods and cool periods? What would serve as a thermometer?

Actually, there were two thermometers — two very different, and independent ones — so that if the two agree, that would be significant.

The first involved the tiny radiolaria that lived in the ocean through all the half-million years being investigated. These are one-celled protozoa with tiny, elaborate skeletons which, after the deaths of the creatures, drift down to the sea bottom as a kind of siliceous ooze.

There are numerous species of radiolaria, some of which flourish under warmer conditions than others. They are easily distinguished from each other by the nature of their skeletons, and one can therefore poke along the cores of sediments, millimeter by millimeter, studying the nature of the radiolarian skeletons and estimating from that whether, at some given time, the ocean water was warm or cool. One could, in this way, set up an actual curve of ocean temperature with time.

The second thermometer involves, not living things, but atoms. Oxygen consists predominantly of oxygen-16 atoms. About 1 oxygen atom out of 500, however, is oxygen-18. (There are also a very few oxygen-17 atoms about, but their presence doesn't affect the following argument.)

The oxygen-18 atoms are 12.5 percent more massive than the oxygen-16 atoms. A water molecule, containing oxygen-18, has a molecular weight of 20, compared to 18 for a water molecule containing oxygen-16. That is an 11.1 percent weight difference.

When solar heat evaporates water from the ocean, water molecules containing oxygen-16, being lighter, vaporize slightly more readily than do those containing oxygen-18 atoms. At any given time, the water vapor in the atmosphere and the rain it condenses to, are richer in oxygen-16 and poorer in oxygen-18 than the water of the ocean is.

This disparity doesn't ordinarily build up. The water vapor condenses to rain and falls into the ocean again, or it falls on land and, in not too long a time, flows into the ocean.

In the course of an Ice Age, however, a great deal of the water vapor ends up as snow that lands on the growing ice-caps and remains there, not returning to the oceans for tens of thousands of years.

The ice sheets represent a huge reservoir containing water molecules that are rich in oxygen-16 and poor in oxygen-18. The more voluminous Earth's mass of ice, the greater the quantity of oxygen-16 preferentially withdrawn, and the higher the percentage of oxygen-18 in the water of the still-liquid ocean and in any molecules that incorporate the oxygen of that water.

One can therefore go along the sediment core, millimeter by

millimeter, determining the oxygen-18/oxygen-16 ratio. The higher the ratio the more advanced the Ice Age and the lower Earth's temperature.

Both thermometers yielded just about identical results in both cores. What's more, the temperature curves obtained could be shown to be built up of simple cycles closely resembling those that would be expected of the known orbital and axial variations of Earth.

There seems to be good reason to think, then, that it is the orbital and axial variations that are indeed the cause of the Ice Ages, and that the curve we obtain may be used to predict the future in this respect.

We appear right now to have passed one of the pronounced peaks in the curve that comes at 100,000-year intervals and which represents mild interglacial conditions, and to be heading down toward a new Ice Age.

That doesn't mean next year, of course (though those of us who have just lived through the frigid January of 1977 might be excused for having our doubts), or even next millennium. Nevertheless, however far in the future the Ice Age may be set, there is still cause for concern right now.

Long before the cooling conditions are severe enough to bring about the southward-grinding of the glaciers, they will be enough to shorten the growing season a bit and to increase the incidence of killing frosts early and late in the season at the northern and altitudinal edges of a particular crop region. Good harvests will be bound to become less frequent, and this, combined with increasing population (if it continues to increase) will make starvation the more certain.

Is there anything we can do about it? Perhaps, yes. The scientists working with the cores specifically state that the temperature curve does not allow for "anthropogenic" effects.*

**Don't let the word throw you. It's just Greek for "man-made," and scientists use it only to irritate typesetters.*

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Humanity is doing things which were never before done in the course of the 450,000-year period over which the curve has been worked out. Humanity has been burning fossil fuels at an increasingly rapid rate and has been pouring carbon dioxide into the atmosphere in unprecedented quantities. This will not serve to change the natural percentage of carbon dioxide in the air very much, but it could be enough to increase the green house effect (see NO MORE ICE AGES?, F & SF, January 1959) sufficiently to abort an ice age.

Then, when the fossil fuels are used up and humanity turns to other sources of energy such as nuclear fusion and space solar power stations, the heat developed in this way, and added to the supply we naturally get from the Sun, may continue to abort Ice Ages. Indeed, it may subject us to the risk of over-heating, with consequent melting of the ice sheets that remain in Greenland and Antarctica and catastrophic flooding of the continental lowlands.

Yet one thing remains to be explained —

If, indeed, orbital and axial changes are the cause of the Ice Ages, then such Ice Ages should have occurred periodically for billions of years. Instead, they seem to have been taking place only during the last million years. Before then, there were about 250,000,000 years without serious Ice Ages.

Secondly, the temperature curve would seem to show that the two polar regions are equally affected, yet it is the northern hemisphere that suffers from Ice Ages almost exclusively.

There is some source of asymmetry both in time and in space, and it cannot be in the orbital and axial changes, so it has to be somewhere else — and that will be the topic for next months' essay.

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Lee Killough wrote "The Siren Garden," March 1974. Her new story concerns an artist who attempts a living sculpture of the world's most beautiful woman and runs into mysterious difficulties.

Tropic of Eden

by LEE KILLOUGH

Eden Lyle still lives in Aventine. I see her occasionally at a distance, slim and graceful as ever in the Neo-hellan dresses that were her trademark, but her face is always veiled. I sometimes wonder what she thinks, living there above the Lunamere, looking out over a world she no longer allows to see her, and what she has to say to Hebe — and how much she hates me.

The news she had taken Mad Simon's villa shook Aventine like an earthquake, a rare event. Normally the rich and famous are considered commonplace. With the international airport and the stargate on Diana Mountain just an hour away by cableferry, we are virtually next door to the universe, yet remote enough to make a good retreat. Jessica Vanier wrote her poetry in a cabin on Birch Cove; Xhosar Kain cast his sonic masterpiece *I, the Living* in the studio next to mine, and Thomas Bradley Jerome lived on the cliffs above the Heliomere long before Congress investigated him in its hearings on black market transplants. But Eden Lyle was another matter. She was not merely an actress, not merely one of the most beautiful women alive; she was a legend, Eve and Lillith, Penelope and Circe. She had been the guest of every world leader in the past decade and slept, so gossip claimed, with half of them.

"And she arrived here last night," Clive Harrison announced dramatically, bringing the news to me at my studio. He opened his arms to the sculpture I was working on. "'Hail, Moonflower, who pales the sun; My poor heart sickens for love of you; And lives its days as night eternal; All while —'"

"For god's sake, Clive," I interrupted, "you should know better than to talk at a sculpture with a sonatropism. Look what the sounds are doing to it."

The sculpture was twisting like a corkscrew and leaning toward him.

Clive grinned sheepishly. "Maybe you could let me finish and then title it *The Lovesick Poet.*" But he patted the trope and backed away.

I started humming at it, coaxing it out of its spiral. Sound would always affect it to some degree, of course; the dynamic nature of the medium is the beauty of tropic sculpture. Once I had my basic concept imprinted, the piece would be permeated with a stabilizing gas, and its subsequent alterations would be only variations on the theme, but now every sound affected it profoundly.

And just as I almost had the piece back to its original form, I heard the door behind me open. I grimaced. What I did not need now was another interruption. Throwing a muffling cloth over the trope, I turned, frowning.

With the light of the summer sun behind her, I could not really see the woman in the doorway, only her silhouette sheathed from head to wrists and ankles in a cowled Neo-hellan dress. It was a very nice silhouette, too, and something in the poised assurance of her carriage stopped the unfriendly greeting in my throat long enough for her to speak first.

"Drummond Caspar?" she asked.

The voice was low and rich, husky almost to the point of masculinity — and instantly identifiable. I think I swallowed audibly before speaking.

"Miss...Lyle."

Eden Lyle came forward, pushing back the cowl. Around me the world blurred, and all I could see in the universe was flawless skin, regal cheekbones, eyes as deeply purple and velvet as pansy petals, and silver-blonde hair hanging straight and silky to her waist. It had to be one of the few remaining naturally beautiful faces in the world, just perceptibly asymmetrical, free of the monotonous perfection of cosmesculpturing. Seeing her in person, I could well believe the story that following a hovercraft accident some time ago she had chosen to spend a year in traction waiting for the shattered bones of her leg to heal rather than risk a transplant that might not match perfectly.

Behind me I heard Clive sigh. He began softly, "'Hail, Moonflower.'"

It occurred to me I should say something, not just stand staring. "May I help you?" I asked.

She smiled. It sent a hot flash clear to my toes. "I hope so," she said. "I need something to fill the sterile spots in the villa I've just taken. I'm told you have the best tropic sculpture in both Aventine and Gateside."

Margo Chen, my agent, would have loved to be able to record that. "I have what I consider some very nice pieces," I said.

"Do you have photo and sonatropes?"

I did. I worked with most of the available tropisms: photo, sona, thermo, and kinetitropes, even a few psychotropes. With Clive following, I took her over to the corner I used for a gallery, and while she studied the sculptures, we studied her. Once, crossing glances with Clive, we exchanged blissful smiles.

"It's very difficult to decide; they're all so magnificent." Eden backed off until she stood in the middle of the area and turned slowly, tapping her lower lip with a thoughtful finger. "I think I'll take the one called *Sunspots,* and *Mercury's Child* over there," she said, then sighed. "But none of the sonatropes are quite what I had in mind to fill —"

"I like that one over there."

Neither she nor Clive had spoken, and I certainly had not. Our heads snapped in the direciton of the timid voice. It was something of a shock to realize there was a fourth person in the studio, and a double shock a moment later when, on thinking back, I realized I had actually been aware of the girl all the time but had somehow avoided seeing her.

I looked at her now. She appeared about sixteen or seventeen and closely resembled Eden, which was, perhaps, what made the difference all the more striking. There was the same body, same bones, same coloring — but the silver hair was crudely hacked short and without make-up her pale face looked virtually featureless. She wore her dress, a copy of Eden's, like a shapeless rag.

With all of us staring at her, her face did take on color, an unattractive bright pink. She stepped back, stumbling over a low kinetitrope which had reacted to her movement near it by stretching out sideways. The girl recovered her balance by turning the fall into a smooth backward somersault but straightened pinker than ever. She pointed to a small pyramid of interlocking loops. Almost inaudibly, she repeated, "That one?"

It was an early piece, *Mobius Mountain,* a very minor work. I kept it more out of sentiment than any hope of selling it. It was one of the first tropes I had attempted, and I was still amused at the way it rattled its rings in response to being whistled or talked at.

Eden looked it over from a distance and shook her head. "I'm afraid it isn't suitable." She looked around once more. "I'm sorry; I don't see anything else that attracts me at the moment. I'll take just the phototropes." She paused. "Can I

arrange to have them delivered?"

"I'll be happy to bring them round," I said.

She smiled. "Thank you. Do you know where I am?"

I nodded.

A credit card appeared out of her purse. "Add a ten percent bonus to cover your trouble."

I began, "That isn't —"

Her hand on my arm interrupted me. "Please." Both her voice and velvet eyes insisted.

I made out the ticket.

The girl spoke, and though soft, the sound of her voice startled me again. Somehow I had forgotten her. "Could I have the little piece — for my room?"

"No," Eden said. She held out a hand to me. "Thank you so very much for your time."

The hand was soft and cool. I found myself kissing it. I was tempted to say something like, "My time is ever slave to yours," but controlled the impulse. Clive was the poet. Instead, I said, "I'll bring the pieces out this afternoon."

Clive and I followed her to the door and watched them climb into a chauffeured limousine. As it hummed away, I heard Clive whistle. He pointed at the license.

"That's Bradley Jerome's number. What do you suppose she has to do with him?"

"I'm more curious about the girl," I said.

"Her?" Clive shrugged. "That's just Hebe, a cousin, I think. Eden is her guardian."

Which explained the likeness. I dismissed the girl. "What do you think of Eden Lyle in person?" I asked Clive.

He sighed ecstatically. "I'm going to finish my moonflower poem and nail it to her door."

The world was coming back into focus. I shook the last heady clouds of enchantment out of my brain and pushed him toward the door. "Fine. Finish it. Meanwhile, I'd better get back to work on that sonatrope before the traffic through here ruins it."

I uncovered the trope but just sat staring at it. Imposing precise, brisk lines on it was impossible when all I could think about was velvet purple eyes and long silver hair. Finally I gave up, rewrapped it, and called Margo in Gateside to tell her about the sale.

Her reaciton was one hundred percent commercial. "Get her to pose for you."

My reaction was to laugh. "Right. Offer her five dollars an hour and please don't play compsynth tapes while I'm working."

"I mean it, Cas," Margo insisted. "Her portraits are worth thousands. Or think of its drawing value at exhibitions."

"I don't see how I can impose on her by asking her to give up her

time for my profit, much as I'm attracted by the idea of being able to see her every day."

"Ah, another conquest." Margo's voice came back dryly over the line. "What is there about the woman that makes weak men slaves and strong men swoon."

"She's very beautiful."

"And beautiful women like to be admired, my lad, so get on out and sweet-talk her into sitting for you."

Margo knows her business and I usually follow her suggestions, but Eden Lyle — Eden was different. I thought about it, though. I was still thinking about it when I loaded the phototropes in the van and headed out Cliffside Road toward Mad Simon's.

There were several theories regarding Simon Broussard's architectural preferences: he was a claustrophobic; he was paranoid and wanted to be able to see his enemies coming; or he needed to feel surrounded by the elements in order to write his music. Whatever the reason, he had had the cantilevered cliff-villa built completely of polarized plastics, even to the roof and floor. Outside, it was a coppery mirror, but, inside, a transparent shell awash in dusky sunlight and splashed with rainbows reflected from the water of the Lunamere some forty feet below.

I tried not to look down as I dollied the sculptures to the sites Eden had chosen for them. The sites were perfect. The phototropes would catch every change of light from dawn until sunset, and the size and form of each complimented its surroundings. Eden's choices could not have been better and I told her so.

She blew me a kiss. "Only because I had quality work to choose from. Brad was right." Her gaze slid past me. She looked thoughtful. "I still need one more space filled. Perhaps you'll have a suggestion."

She led the way to an atrium in the middle of the house. At one end water splashed down the sides of a flat-topped pyramid of stones into an oval pool — though that was not the first feature to attract my attention. The girl Hebe was there, too, working out nude on a broad exercise mat. I saw now how she had managed the morning's somersault over the kinetitrope. Her every movement was smooth and controlled. She flowed from stretch to bend to twist with the fluid grace of a cat.

She stopped as we came in and looked questioningly at Eden.

Eden circled the mat to the pool. "Don't let us interrupt you."

Wordlessly, Hebe resumed her exercises, though they now had a self-conscious stiffness.

Eden pointed to the waterfall.

"That's where I wanted to put the sonatrope. I thought the water would provide an interesting stimulus for it." She looked up at me. "Could you do a piece especially to put there?"

It was too good a chance to miss. "Yes," I said, "but I'd like to use a psychotrope instead, and... I'd like to represent you."

Her brows rose. "A psychotropic portrait." She studied the waterfall. "What an intriguing idea." When she looked back up at me the velvet of her eyes was so thick the color looked near black. "I'd like that. When would you like to begin?"

My answer was a bit hoarse. "Whenever it's convenient for you."

"Tomorrow morning is convenient, but I have one condition. I dislike going out except when necessary. Would you mind bringing your materials and working here?"

Work here, alone with her, every day? I could hardly say yes fast enough.

She looked back at the waterfall, smiling, absently pushing her hair back from her forehead. I noticed a thin, nearly invisible surgical scar just under the hairline. I looked more closely. It was the type made by face-lifting. Her age was impossible to guess, but I realized that she was not the mere girl she first appeared to be.

Noticing my scrutiny, Eden abruptly backed away from me into the comparative shadow of the salon entrance. "I think there's nothing more to discuss, then," she said. "I'll see you at ten o'clock tomorrow. Hebe, finish inside, out of the sun."

It was clearly dismissal. Leaving, I cursed myself for staring. I was lucky that Eden had not been so offended that she canceled the sittings.

The next morning, though, I wondered whether I had imagined her offense. She greeted me with a smile that would have melted the polar caps. "Do come in. May I call you Drummond?"

"Everyone calls me Cas."

"Cas, then. I have a space cleared for you in the salon."

Aside from the uncomfortable feeling the transparent floor gave me of walking on air, I approved of her choice. The entire room was bright, but the light was best over the small table she had set up for me. I suggested an area rug be laid where I would be working. That solved the problem of vertigo, and I was ready to go to work.

The dress Eden wore today was based on Minoan styles. It bared her breasts and was slit to the hip, revealing a long expanse of smooth leg with each step. She curled up on a couch in front of me.

"I've never sat for tropic sculpture before. Do I do anything in

particular?" she asked.

"Just relax and be yourself. With this tropism, both of us are needed to imprint the concept. I do the basic shaping; then your personality determines the final form. Don't be disturbed, but I'm going to just look at you for a while," I warned her.

She laughed. "I've been looked at by a good many people. I thrive on it."

She certainly appeared to. While I leaned on the wrapped block, forearms folded, and studied her through half-closed eyes, building an image in my mind, she stared back with velvet eyes and a slight smile curving her mouth. Then I unwrapped the block and began roughing out my mental image. It was to be slim and softly curved, all lightness, delicacy, and grace, yet sensual, too.

Eden watched with fascination. "It's extraordinary how they change shape. I know they're mutated from sensitive plants like the mimosa group, but I've always wondered how they come to artists like you in those nice big blocks."

"They're cultured from the breeder's parent stock from slips or, more commonly, by cloning."

Her eyes regarded me steadily. "I didn't know cloning was done commercially."

"Of course. It's the best way to reproduce the qualities in a particular individual. There was even a fad for cloning people a while back."

"I remember." She glanced at a table chronometer and stood up. "I'm afraid that's all the time I have today." She softened the dismissal with a smile and a blown kiss. "Tomorrow at the same time?"

Of course tomorrow at the same time. My only concern was what to do the rest of the day that would not seem anticlimactic.

On the way out I passed Hebe standing still and silent in the doorway, but not until I was in the van did it occur to me that I had not so much as nodded a greeting to her. What was it about the girl that made her so easy to ignore? It must be difficult growing up as a ward of someone as overwhelming as Eden Lyle. I resolved to make a point of acknowledging her presence the next time I saw her.

As it turned out, I need not have worried about the rest of my day. It was spent entertaining half the population of Aventine, it seemed, a constant parade of my friends and fellow artists along Callisto Avenue who wanted to ask what Eden Lyle was like. The traffic was so bad I finally locked the door and pretended to be out in order to get any work done on my other commissions.

Eden was very amused by it when I told her several days later.

She laughed aloud. "I should have warned you what you were letting yourself in for. I'm sorry." The warm velvet of her eyes belied the words, though. "Do you want to stop?"

I did not. However much trouble it might cause the rest of the day, I would not have given away one of those mornings with Eden Lyle at any price.

I heard a soft slither on the floor behind me and looked around to see Hebe slipping barefooted into the room. I remembered my resolve.

"Hello," I said.

She stopped short, eyes startled, and looked quickly past me toward Eden. "Hello," she whispered and, turning, fled.

I cocked a brow at Eden. "Did I do something wrong?"

"She's just shy." Eden came over to stroke the emerging shape of the sculpture. "It's progressing beautifully."

I wished it had been. I would not tell her, but the trope was resisting me. The form was only partially what I intended. The rest was its own idea. I lay awake some nights wondering what was wrong with it.

However, there was a bright side to the problem, too. Every difficulty meant another day I could spend with Eden, and they were hours I would remember the rest of my life. While I worked, she — performed would be the best word, I suppose, adding the force of her personality to the shaping of the sculpture. She recreated bits of past roles, told witty anecdotes about the famous and powerful men she knew, and danced or sang. The sinuously graceful dance steps reminded me of Hebe's exercises. The songs were mostly unfamiliar. One of them haunted me for days, though, until I finally identified it as one my mother used to sing when I was a boy.

I told Eden. It was the second faux pas of the day. The first had been bringing *Mobius Mountain* out to give to Hebe. I am not sure why I did it. Out of guilt, probably, compensation for having mostly ignored the girl day after day.

Once she was past initial disbelief, Hebe was radiant with delight. She hugged the little sculpture to her. "Thank you." She even managed a normal tone of voice. "No one ever —" She broke off, coloring, and bolted.

Eden said, "You didn't have to do that." Her voice was light, polite, correct for the situation, but her face was taut, and before her eyes went opaque, I caught a quick glimpse of disapproval and something that looked strangely like fear.

Tension stretched uncomfortably between us. To break it I said,

"I know where one of your songs comes from," and told her about my mother.

The velvet in her eyes turned to gem-hard brilliance. Without a word she turned and walked out of the salon. I could only stare after her and wonder irritably what in the stars possessed the two of them. Was there something about Mad Simon's villa that drove its inhabitants as crazy as the old man? Maybe living suspended in midair did it.

On the way out I glimpsed Eden in the library, talking on the telephone. "...arrangements, Brad," she was saying. Her voice rose, sharpening. "It must be done as soon as possible."

I shut the door behind me rather harder than necessary.

A ringing phone greeted me at the studio. It was Eden, contrite and apologetic. "I'm sorry for my rudeness, Cas. I hope you'll forgive me."

"Of course." I was only too happy to. "But would you tell me what happened?"

"It's silly. You suddenly reminded me of something I had to do, and I was out of the room before I realized I had just walked out and not explained to you."

I did not examine the plausibility of that too closely; I wanted to believe her.

"So don't think I'm angry with you," she went on, "but I can't sit tomorrow. I have an appointment I must keep."

"I could come in the afternoon," I offered hopefully.

"I'll probably have to be gone all day. I'm sorry."

I was, too. The day after tomorrow seemed like an eternity away. What could I do in the meantime? For one thing, I could go over to Gateside. I needed to pick up some supplies, and I really ought to stop by Margo's office and go over the details of an exhibition I had been invited to contribute to. I called Margo to warn her I was coming and early the next morning caught the cableferry.

Margo greeted me with a sardonic smile. "Welcome back from paradise. How does it feel to be among mere mortals again?"

"Don't forget who it was that urged me to do this portrait," I replied.

She lifted a brow, then grinned. One finger drew a mark in midair.

Our ritual thrust and parry over with, she pulled out an envelope of information sent by the exhibition's promotors and we settled down to study it. Mostly it was a matter of deciding which pieces to send and how best to send them. That took most of the morning.

As we finished and stood to stretch, Margo said, "It's a bit early but why don't we catch lunch now

— my treat — and then you can see about getting your supplies."

"If you're paying, it's a fine idea. Where shall we go?"

We went to the usual place, the Beta Cygnus. The food is excellent, it is enough out of the way that the tourists have not found it yet, and, perhaps most importantly, it is right across the street from Margo's office. We sat down at one of the sidewalk tables and ordered.

The waiter brought tea first. Margo settled back comfortably, sipping at hers.

"How is the Lyle portrait coming?"

I rubbed my nose, grimacing. "I don't know. I know what I *want* to do. Sometimes the piece flows right into the image, but other days it's like a wrestling match, and the best I can do is a draw. The trope is very stubborn about doing something else."

She leaned forward, setting her cup aside. "Like what?"

"That's what I don't know."

"It *is* a psychotrope," she pointed out. "Maybe the problem lies in your subject, or to be more exact," she hurried on when I opened my mouth to protest, "the difference between your subject and your concept of her. The trope may be responding exactly as it is supposed to."

I rejected flatly. Eden was nothing like the form the psychotrope appeared to be trying to take. There was one other possibility, of course. Until it was stabilized, the trope could shape to any personality near it, and Eden did not live alone. I would not have thought, however, that Hebe's personality would be strong enough to override —

The thought broke off as I saw the subject herself sitting at a back table. Surprisingly, Hebe was alone. I called to her.

She hesitated, then smiled and waved shyly.

"Come on over and join us," I invited.

After a good deal of lip chewing, she did, holding her long skirt up to keep it from tangling with chair legs or her own feet. I introduced her to Margo, who looked the girl over with the same narrow-eyed speculation she used on the work of unknown artists.

"Gateside is an interesting place to poke around on your own, isn't it?" I asked.

Hebe's eyes widened with surprise. "I'm not alone. Eden is inside."

"She finished her appointment, then?"

"Appointment?" Hebe shrugged. "I don't know. This is where Mr. Jerome brought us. When Dr. Ascher came, Eden told me to wait out here."

It was the longest single speech

I had ever heard her deliver.

Margo frowned. "Ascher. Dr. *Hugo* Ascher?"

Hebe bit her lip. "I don't know." Her eyes went past us toward the door of the Beta Cygnus. She brightened. "Ask him yourself. They're coming out."

Eden recognized me instantly. The brim of her hat hid her expression, but there was surprise in her posture as she halted in the doorway. She moved forward again almost immediately, and by the time she reached our table she was smiling in delight. I stood up to meet her.

She held out both hands to me. "Isn't this a marvelous coincidence. We get to see each other today after all, it seems. Oh, I'm forgetting my manners." She stepped aside and brought up the men behind her. "Drummond Caspar, Brad Jerome. You may have seen him around Aventine. This is Mr. Hans Feldman."

Jerome nodded. The other man made a stiff little forward jerk that looked like an aborted bow from the waist.

Eden sighed wistfully. "I wish we had time for a drink with you, but we have to go." She reached up and touched my cheek. "Tomorrow. Hebe."

She called the girl as someone might command a dog to heel. It was a disquieting thought.

Margo looked after them. "Feldman?" she murmured.

"Maybe Hebe heard wrong. She's a strange child."

"Strange, maybe, but not wrong. The man's name is Ascher, all right, and he used to be a doctor until someone sued him for malpractice a few years ago — I forget the circumstances just now — and his license was taken away."

I vaguely remembered the case, too.

Margo sipped her tea. "I wonder why she lied."

"Maybe Jerome told her to." After all, it was easy to see the possible connection between Mr. Thomas Bradley Jerome and an ex-doctor. Eden was probably along for the ride, and naturally Jerome would caution her against advertising his affairs. I put the matter out of mind.

To be more accurate, I made the decision to do so. In actual fact, it would not go away. It kept niggling at me, asking uncomfortable questions like: if Jerome wanted a confidential meeting, why not temporarily dismiss Eden as they had Hebe?

That may have been why the sittings went so poorly after that. Psychotropes are the most difficult to manipulate; they need full concentration and no external tension. Either I lacked the one or something was providing too much of

the other because I had no control over the sculpture any longer. It kept pulling away from my hands, slowly, in the way of tropes, but inexorably. The fluted edges defied being spread and insisted on curling like scrolls. I would coax one into opening, but when I turned my attention to another, the first started folding again.

"It seems to have gone psycho today," I quipped, giving up in disgust.

Eden tucked her arm through mine and rubbed her cheek against my shoulder. "Perhaps it's a faulty piece of wood. Or maybe —" She looked up at me. "— it's something I'm doing wrong."

"I'm sure it isn't your fault," I assured her. "But I really don't care any longer. I'm tired of fighting it. Why don't we scrap it? I'll get a new block and start over."

Her finger smoothed the hair on my forearm. "There isn't time. Brad is going abroad soon and he's asked me to come with him."

The bottom went out of my stomach. "And you're going?"

"Oh, Cas." Raising herself on her toes, she kissed me lightly. "It isn't the end of the world, nor is it forever."

It would only seem so. I looked down at her. "So you want me to keep working on this piece as it is."

She stepped away from me and turned her attention on the sculpture. "I don't think it needs any more work."

I stared incredulously. "How can you say that when —"

She interrupted. "It may not be what you intended — sometimes a role I set out to play won't take the interpretation I would like, either — but it's still beautiful. I'd like to keep it as it is."

I eyed the trope with distaste. It was a piece of garbage. "I won't sign it."

"That's all right." She grinned mischievously. "I'll still know who did it."

I went on as though she had not spoken. "But I won't charge you for it, either. I don't approve, but if you want it, it's yours. I make you a gift of it."

The velvet of her eyes glowed richly. "Thank you very much, Cas. Would you set it up in the atrium, please?"

I carried it out and placed it on the flat surface above the waterfall. Then, leaving Eden admiring it, I gathered up my tools and glumly loaded them in the van. I left with only a perfunctory wave at Hebe, who was doing her exercises on the floor of the library. I could not understand how anyone with Eden's good eye for art could think the sculpture was beautiful. It was not at all what it was supposed to be, not at all Eden Lyle.

I did not see Eden again for al-

most a week. I picked up the phone a couple of times to call but could think of nothing to say and hung up again. I kept hoping she would call me. She did not, and, finally, afraid that if I did not act I would lose the chance to see her at all before she left, I drove out to her villa one evening.

It was just getting dark but the lights had not been turned on in the villa yet. It loomed opaquely against the sky. A figure in a long pale dress moved gracefully through the garden.

"Eden," I called.

The figure paused. I vaulted the low boundary wall and ran up the slight slope toward her. Not until I was beside her did I realize it was Hebe. What I had taken for long hair was the cowl of her dress.

I could not keep the disappointment out of my voice. "I thought you were —"

"Eden," she finished matter-of-factly. "She's out tonight."

My disappointment sharpened. The drive had been in vain. I felt I could not just leave, though, and so I said, "It's uncanny how much you look like your cousin in this light. If you wore some make-up and let your hair grow, the two of you would look like twins."

Hebe's eyes lifted to mine, dark, unreadable pools. "We are."

I did not immediately understand. "Are what?"

"Twins. Not cousins."

I laughed. "There's just a few too many months' difference in your ages for you to be twins," I pointed out.

"I'm a clone," Hebe said.

I realized several moments later that my jaw was hanging and snapped it back into place. I tried to talk. I did not succeed very well. "A — I thought — cousins, I was told — why would Eden —"

"I asked once," Hebe said. She sighed. "She wouldn't tell me why she had me made."

She turned toward the villa. I found myself following. She pulled a leaf off a low-hanging branch and absently shredded it as we walked. I watched her covertly.

A genetic duplicate of Eden, maybe, but nothing alike in any other respect. Why did she exist? I knew the reasons usually attributed to certain groups: homosexuals, male and female, and "liberated" women, in order that they might have children without having to involve the other sex; individuals whose vanity forbade the dilution of their germ plasm; eugenics faddists intent on perpetuating their ideas of racial perfection. Surely Eden did not fall into any of those categories.

We reached the villa. Dropping the remains of the leaf, Hebe led the way inside through the terrace door. With darkness, the percep-

tion of depth was gone, and the floor looked more substantial, though the moon and stars visible beyond the ceiling and the splintered reflection of the moon on the water below still gave the illusion of being immersed in a sea of lights. Hebe touched a hidden light switch and the illusion disappeared. Instead, we were surrounded by mirrors. Our distorted images reflected back at us from walls, ceiling, and floor.

She shook back the cowl of her dress, watching her reflections do the same. "Hebe was a servant," she said quietly.

Her mythology was poorly researched. "Not exactly a servant," I corrected her. "Hebe was the cupbearer of the gods, yes; she was also the goddess of youth and spring. One of her gifts was supposed to be the ability to restore youth."

Hebe focused on me for a moment; then her eyes went remote. "Next to physical perfection, Eden worships youth."

She turned away toward the atrium. "Come look at your sculpture. It keeps changing."

I could well imagine, if I had not known how it was supposed to look, I might have been able to admire the piece. It was tall and graceful, its color faintly luminous in the single spotlight shining up from its base, but where it should have been spread wide, catching the light and embracing the horizon, it was narrow, shadowed, folded in upon itself. It stirred, reacting to our presence. Slowly, several of the fluted edges unrolled.

"Watch," Hebe said.

She moved around the pool. The sculpture quivered. It turned, following her progress.

The skin down my spine prickled. I have worked with tropes of every kind but none that ever reacted like that, not even kinetitropes. I moved around the pool in the opposite direction, but the sculpture did not react to me.

"Only me," Hebe said.

She moved closer. The sculpture leaned toward her, more of its edges opening, reaching, groping for her. With a shiver, Hebe backed away and walked quickly into the salon.

I followed. "When are you leaving?" I asked.

"Day after tomorrow." She did not turn on the lights but stood at the wall looking down over the Lunamere. "For Switzerland."

"Your cou — Eden seems partial to mountains."

Hebe looked around inquiringly.

"Both Aventine and Switzerland have mountains," I explained.

"We're going there because of some spa Eden wants to visit." By the light I could see her wrinkle her nose. "I even have to go."

"It won't hurt you. Most of those places provide plenty of rest, nutritious food, and exercise."

She just looked at me. After a bit she said, "I get that here."

I laughed. "Which spa is it?"

"Nebenwasser, near Schoneweis."

Nebenwasser. I had heard of it somewhere. I groped for the memory but it eluded me.

"Dr. Ascher recommended it," Hebe said.

I knew, then, where I had heard of Nebenwasser, and, more, I remembered the details of Dr. Hugo Ascher's malpractice conviction. That answered other questions, too. I hated all of them. I felt as though I were suffocating.

"Where's Eden?" I asked hoarsely.

"With Mr. Jerome."

I did not even thank her; I just headed for the van. I had to find Eden.

I did not have to go far. She was climbing out of Jerome's limousine as I left the villa. She watched it drive away before she turned and saw me.

"Why, Cas," she began, "what a lovely sur —"

I grabbed her by the shoulders. "Would you really go that far to stay physically perfect?" I demanded.

It was too dark to read her face but I heard her sharp intake of breath. "What do you mean? Cas," she protested, "you're hurting me."

"I know what Hebe is."

"So?" Her voice cooled. "There's nothing wrong with cloning."

"But she doesn't know why you did it. I do. Eden," I pleaded, "don't do it."

Her muscles went diamond-hard under my hands. With a sudden, surprisingly strong movement she twisted loose and backed away. "I don't have the slightest idea what you're babbling about," she said coldly.

Then I was sure I was right. My voice went harsh. "You've heard of Nebenwasser, surely. Your friend Jerome owns the property, according to Congress. He calls it a health spa, but it's a hospital."

"I will give you the benefit of the doubt and assume you're merely drunk, not mad. Go home and sleep it off, Mr. Caspar."

I caught her elbow and locked both hands around it. "Dr. Hugo Ascher, whom you call Feldman, is a transplant surgeon. He was one of the top men in the field until he ran into a little bad luck. That one chance in a hundred happened, and a patient died because his transplant rejected. There would be absolutely no chance of that if recipient and donor were genetic duplicates."

"In one second," Eden hissed,

"I am going to start screaming."

"The transplant," I went on, "was a brain transplant."

The scream that shredded the night around us came from behind me. I dropped Eden's arm and whirled. A pale figure was fleeing away from us toward the villa. Hebe must have followed me out. If so —

"My god," Eden whispered. "She must have heard everything. Hebe!" She ran after the girl. "Hebe, wait!"

The front door slammed behind them. When I reached it, it was locked. I pounded on it. I could hear Hebe screaming hysterically inside.

I lunged at the door but it was massive and solid. All I did was bruise my shoulder. The screaming went on, and under it, the murmur of Eden's voice. I remembered the terrace door Hebe and I had used earlier. I started around the villa toward it.

I could just make out some of Eden's words, knife-edged: "...love-sick fool... jealousy... keep us here... he's being vindictive... Nebenwasser... good time..."

"Liar," Hebe shouted. "LIAR!"

Suddenly, as I reached the terrace door, Eden shrieked, "Hebe, *no, don't!*" She screamed once, then subsided into a keening wail of despair.

From the sound of their voices they were in the atrium. I ran for it. And stood paralyzed in the doorway.

The plastic wall panels reflected the scene, and reflected also the images of opposite walls, so that stretching away to infinity on all sides, with increasingly greater distortion, were countless Edens wailing beside countless pools, their arms reaching toward the waterfall at the end, where the psychotrope huddled dark and withered and countless Hebes stood pressing their cheeks to the searing hot metal of the small spotlight they had ripped from the base of the sculpture.

I broke my paralysis and vaulted the pool to jerk the spotlight away from Hebe.

She let it go, smiling. The entire side of her face was purple and shriveled. "Too late," she said triumphantly. "No surgery can make me perfect again." She swayed. "No use to her now."

I caught her as she fainted.

And around me reflections reflected reflections, and an infinity of Edens looked at me with loathing and sank to the floor of an infinity of atriums, covering their faces.

REPORT ON COMPETITION 16

In the April issue, we asked for samples of a Dear Abby column of a century or so from now. That was Dear Abby, folks, not the Playboy Adviser. Some pretty kinky stuff received. Oh, well, the C. E. is a stickler for laughs and quality, not a censor. All the RUs* that fit, we print.

FIRST PRIZE

Dear Ybba,

Frankly I'm not a fan of yours, but I wish you'd put this in your column where my crazy wife will see it. She believes every word you write and only about a quarter of what I say. Which is my point. I've been throwing up every morning since we returned from Luna and I maintain it's that lousy moonwort she brought back. You won't believe what she says — she says I'm pregnant and since she's not responsible she's suing for divorce. Set her straight, Ybba.

—Macho

Dear Mach,

Sorry, I believe. Under Lunar-revised ERA males can be compelled to carry any child they engender to full term and the Moonies know how to implant a pseudowomb the way you know how to file your nails. Maybe a few more Earthlings will have to wake up with a hangover and a little stranger before you guys wise up. In the meantime see a good obstetrician.

—Marion Briggs

SECOND PRIZE

Dear Ybba

When I was in college I dated a boy from Procyon IX; you know what *they* are like. Anyway, to please him, I had four extra breasts surgically implanted. After we broke up, I went out with a Venerian Priest of the Flesh; I had several vaginal openings surgically placed at different points on my body. Then I began seeing a Tritonian Lady-sir — and had my clinic give me a penile attachment.

If you think you see the beginning of a pattern here, you're right! My problem is this: whenever I get a new organ to please a boyfriend, I can't bear to have any of the previous ones removed. Ybba, I am a mass of openings, cavities, bulges, and protrusions. I *literally* have pistils and stamens coming out of my ears!

People (those who don't avoid me) are beginning to laugh at me. My co-workers refuse to speak to me. What should I do?

I am a humanoid, White, Anglo-Saxon Protestant.

In Tears

Dear In:

From your letter, I can tell that you are a warm and sensitive person. I am sure that with the proper counselling, you can have a rich and rewarding life and will be able to meet a man who will accept you for what you are and not for what you can attach to your body.

Meanwhile, I suggest that you contact your local chapters of Primary Sex Organs Anonymous, Secondary Sex Organs Anonymous, and the Society for the Reversion of Revulsion to Sexual Organ Depletion. My files are filled with testimony about the friendly, sympathetic, and successful work each of these groups have done. They will give you the best counselling possible.

Please let me know how things work out for you. I truly care.

—Jerry House

**Runners-Up, with a long "u."*

RUNNERS UP

Dear Ybba:

We'd been having some problems with our 14-year-old boy, Ferd — rude behavior, poor table manners, adolescent slang. Nothing really serious, but enough to force us to cut off his teletrans privileges a few times last month. Now the lad comes up to us and presents us with an all-expenses-paid family vacation on exotic Grimshibble! Turns out he saved up all the money he'd made working after school at the radionucleide factory. What do you think about the modern generation now?

Proud Parents

Dear Proud Parents:

I don't want to throw cold water on your vacation plans, but isn't Grimshibble the planet where a child can declare his parents mentally incompetent and have them recycled into the planetary protein pool?

—Rich Bartucci

Dear Ybba,

I had heard that the men of Vega VII are the most promiscuous in the galaxy. Having met one at a party recently, I find this hard to believe. The fellow's social skills seemed limited to a quick hello and clammy handshake. If all his Vegan brothers act like this, how did they get their sexy reputation?

Farrah Farside

Dear Far Far,

I've got news for you, honey. Because Vegans' genes are normally passed along via perspiration, *any* skin contact is sufficient to complete the act. Socially respectable Vegans always wear gloves.

—Kenneth Ringlein

Dear Ybba,

My earlier marriage/liaison to a Venusian, although he was humanoid, failed, leaving much to be desired. So I was ecstatic when Flrr and I developed a liaison. True, as a native Neptunian, he was tinier than a cinder, and our sexual relationship is a mote strange, but we were in love. Due to his size, safety was always a factor, and his favorite place if I was out, was attached by a secreted body strand to the inside of any mint-flavored lifesaver. My always hungry child by my former marriage/liaison came in, and you guessed it. He popped lifesaver with Flrr glued to it into his mouth and swallowed. What do I do now?

Flrr's Her, Watt-Sun

Dear FHWS,

Never fear. Watch your child's bodily functions, or have his tummy pumped. As a Venusian/human child, he is physically like you. And for Flrr, Neptunians secrete protective bubbles around them when in danger. Flrr will probably do this and survive the ordeal well. It's alimentary, my dear Watt-sun.

—Evelyn Mayfield

Dear Ybba,

My problem is as old as Jupiter, but I still don't know how to handle it. It's my mother-in-law. She lives on a retirement planet in the Centauri IV System and she only visits us every decade or so, but she has this very annoying habit. Almost every day she projects a tri-ex hologram of herself into my house and nags me about my housekeeping, my cooking, and my sex life. It's enough to make a person want to explore deep space! My husband refuses to say anything about it to her, and we can't afford a tri-ex shield. What can I do?

Interstellar Nag

Dear Nag,

Ignore it. After all, it's only a tri-ex, and it'll put you in practice for when

the real thing comes to visit.

—Lynn Steele

Dear Ybba:

My husband and I have been what I thought happily co-paired for more than twelve years; we have two adorable children, and live in a beautiful, fully-equipped module on floor 811006 of one of the nicer buildings in the City Complex.

My husband's Sexual Frenzy Figure for me when we were co-joined was measured as being very high, and, though it has steadily decreased over the years to the point where it disappeared altogether last year, I wasn't concerned because he was always so quiet anyway, and didn't really want to bring it up. But then one day about 2 months ago, while I was busily scrubbing and shining our many modern appliances, my husband suddenly burst into our module and stood panting in the doorway, a wild, flushed look on his face. I was about to ask why he had left his employment in the middle of the work cycle when he suddenly screamed, "I can't keep it in anymore!" and flung himself across the room at me. I thought he was going to jump on me, and, after his recent inattention was happy for that fact, but he pushed me aside and threw himself on our new atomic pile-powered egg-timer, which I had been cleaning.

Since then he has mated with various appliances in our module, and does nothing but stomp around with a wild look in his eyes, refusing to talk to me or the children.

Why doesn't he like me anymore?

Confused

Dear Fused:

Your husband's preferences are by no means unusual these days, and I'm afraid that once he's gone to appliances, you'll never win him back. I suggest you either get a job and leave the housework to him, or bring him to the appliance department of one of the large store complexes, leave him there, and run away with the children.

—Al Sarrantonio

Dear Ybba,

I thought when I met one of those cute blue humanoids from Cestus 2:34 that I was in for a swinging good time. I heard from a bio-tech I lived with once that their metabolism is the reverse of human systems; they breathe in carbon dioxide and breathe out oxygen. Since they're a close match for humans as far as shape is concerned, the possibilities for kinky romance seemed obvious. I immediately thought of submerging in vegetable oil, quicksand, wine vats, the ocean and a dozen other situations we could enjoy so long as we kept our mouths locked. When I suggested this to him, he turned a strange shade of green and stalked off. Where did I err?

Ms. Informed

Dear Ms. Informed,

Small wonder Mr. Blue walked away. Your bio-tech bed-buddy didn't tell you everything. Their systems are the reverse of ours alright — they also eat through what corresponds to the human anus and excrete through their mouths. If your friend happened to be an interplanetary sociologist, he might have told you that 2:34s consider their excretion part of their *smyrgx*, or "eternal mass" (albeit a crude translation) and that every bit is carefully guarded and preserved. He probably thought you were brazenly trying to steal some and put him in *laphyl*, a sort of bondage tied to possessing a part of his *smyrgx*. Net time, get the *whole* story.

—F.C. Adams

CONFIDENTIAL TO I.H., TOKYO:

In answer to your query, (1) sorry, but there's no company in the world which sells Godzilla insurance and (2) contact your City Health Services Office. I'm sure they have enough men and equipment to remove the two and a half tons of radioactive manure from your garden.

—*Buzz Dixon*

COMPETITION 17 (thanks to David Silverman and Philip M. Cohen)

Future anachronisms: Even scrupulous researchers find it difficult to keep historical novels completely free from anachronisms. For Competition 17 we ask you to consider what kind of mistakes the historical novelists of seven or eight centuries from now are likely to make, not only with novels set in this century, but in previous centuries as well. For example:

Stanley, prior to his fateful meeting with Livingston, had not acquired the reputation of an explorer. He had never been outside the Solar System. In fact, he had not even traveled beyond the moons of Neptune...

Caleb, caught in the web of the Great Depression and still unable to accept the reality of the loss of his livestock and his five-acre farm, gathered his family and told them that he had decided that they must pack everything movable and head West in the Model T — against the advice of his psychotherapist . . .

"During the Potato Famine," she sneered, "I knew of family of ten in County Clare who made do on a bucket of coal and 4,000 pounds sterling a day!"

Rules: Send entries to Competition Editor, F&SF, Box 56, Cornwall, Conn. 06753. Entries must be received by August 10. Judges are the editors of F&SF; their decision is final. All entries become the property of F&SF; none can be returned.

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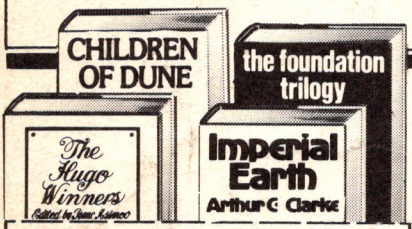

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